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L. Brise Ruggles Brise.



THE
Country Gentleman's Architect;

CONTAINING

A VARIETY OF DESIGNS

FOR

FARM HOUSES AND FARM YARDS

OF DIFFERENT MAGNITUDES,

ARRANGED ON

THE MOST APPROVED PRINCIPLES

FOR

ARABLE, GRAZING, FEEDING, AND DAIRY FARMS;

WITH PLANS AND SECTIONS

SHEWING AT LARGE

*The Construction of Cottages, Barns, Stables, Feeding-Houses,
Dairies, Brew-Houses, Maltings, &c.*

WITH

PLANS FOR STABLES AND DOG-KENNELS;

TO WHICH ARE ADDED,

DESIGNS FOR LABOURERS' COTTAGES AND SMALL VILLAS.

THE WHOLE ADAPTED TO THE USE OF COUNTRY GENTLEMEN

ABOUT TO BUILD OR TO ALTER.

By R. LUGAR, Architect & Land Surveyor,
AUTHOR OF ARCHITECTURAL SKETCHES FOR RURAL DWELLINGS, &c.

ENGRAVED ON TWENTY-TWO PLATES,
WITH GENERAL OBSERVATIONS AND FULL EXPLANATIONS TO EACH.

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County of Gloucestershire

18th March 1881

John Smith Esq

of the County of Gloucestershire

do hereby certify that

the within is a true and correct copy

of the original as the same appears on the records of the County of Gloucestershire

Witness my hand and seal this 18th day of March 1881

John Smith Esq

County Clerk of Gloucestershire

Gloucester

18th March 1881

John Smith Esq

County Clerk of Gloucestershire

P R E F A C E.

AGRICULTURE is unquestionably the most ancient and most useful of those arts which have engaged the attention of man. The most eminent and enlightened statesmen, in every nation, have studiously promoted its improvement; and the extensive effects of patronage and example in our own country, have lately rendered incalculable benefits to the community. The comfort, not to say the existence, of civilized man, depends on suitable returns of produce for the labours and toil of the husbandman; and sound policy regards the improver who facilitates the means of attaining these objects, as the most useful member of society.

The importance of well arranged buildings to the general purposes of a farm, is obvious; the protection of the useful animals, and the economy of their maintenance, are objects of great concern to the practical farmer; yet have not, I believe, been duly attended to in any publication by a regular architect. In my professional occupation I have had frequent occasions to observe the numerous defects and inconveniences in rural buildings, left unremedied, for want of some proper guide by which the head and hand of a rustic builder might be directed. To supply these deficiencies, as far as I am able, I have selected from different sketches

and studies, various examples of rural buildings suitable to the different intentions of Gentlemen who from philanthropy may wish to build cottages for their labourers, or farm-houses and farm-yards for their tenants. I have also added a selection of houses possessing superior internal accommodations, and suited in their external appearance to the rank and style of a Gentleman farmer, accompanied by such out-buildings as distinguish the residence of a principal land-holder, living in a way suitable to an extensive domain.

I beg leave to express, in strong terms, my opinion of the necessity for much previous reflection before a Gentleman engages either in building or alteration; upon a strict survey of the situation, the nature, the extent, and the character of whatever building is proposed; with a careful investigation of a variety of drawings shewing the several approaches, connexions, heights, conveniences, and different views of the structures intended. By a previous discussion of all these points much labour and expence will be saved; and the buildings may be expected to prove satisfactory.

To render this work completely useful to Country Gentlemen, in addition to the various Plans for Farm-houses, Farm-yards, &c. I have given details of the construction of ordinary buildings, such as Cottages, Barns, Feeding-houses, Brewhouses, Maltings, &c. on the most approved, and economical principles; and these are so clearly laid down, that a Gentleman, with the assistance of his carpenter, will be enabled to construct, in the cheapest manner, every

building requisite to his rural economy, according to the nature of his farm.

In explaining the following plates I have occasionally indulged a few practical observations on certain parts of husbandry, which some may think belong rather to the agriculturist than to the architect. In general they are explanatory of my reasons for particular modes of construction and planning, I therefore hope they will not be deemed intrusive, but lead to a due consideration of the various parts, wants, and conveniences, connected with this important class of buildings. If, in some instances, I have transgressed the boundaries of my province, my sole motive has been an anxious wish to render this work extensively useful; and I flatter myself that the real principles of the book will be found of general utility, and the results of experience. I can assert, that no pains have been spared, in studying the several plans, to render them serviceable, without restriction to those local situations, for which some of them may appear to be peculiarly adapted.

Featherstone Buildings, High Holborn,
January, 1807.

GENERAL OBSERVATIONS,
AND
EXPLANATIONS OF THE PLATES.

OF COTTAGES.

THE utility and advantages of Cottages are every where felt; it is only necessary, therefore, here to offer a few observations on their situation and aspect, on the cheapest mode of constructing them, and on the best materials to be employed for that purpose.

A Cottage should, if possible, stand on a gently sloping ground, natural or artificial, in a sheltered situation and near to good water, it should be open to the road, the ground made hard around it, and properly currented, so that the water from the projecting eaves may run off quickly. To render it cheerful, the house or living-room window should invariably front the south. Gardens in front of Cottages have generally a slovenly appearance: the soil being frequently loosened and disturbed near the house, absorbs wet, and communicates a damp which decays the walls and timbers; besides, a fence or hedge interferes with, and hurts, the general appearance. It meets the eye at one-third, or half, the height

of the Cottage, and gives an unpleasant predominance to the roof. Trees standing at a small distance protect the thatch in stormy weather, and greatly contribute to a pleasing and characteristic effect.

Construction. Where fir of English growth is easily obtained, it may very properly form the tie beams, the principal rafters, purlins, and plates, and being well framed together, the common rafters may be of rough stuff, of the size of the largest hop-poles, which, crossed with slight stuff, will be ready to receive the thatch; the joists and floors of English fir; beech, or elm, may be laid as a substitute for floors. When clay is used for external walls and cross partitions, a few uprights and braces, with a plate of fir at top and bottom, will be sufficient, and the vacancies filled in with thatching stuff placed close together, having three or four pieces at equal distances, nailed horizontally to keep them firm, will be ready to receive the clay, with which a good quantity of cut straw should be incorporated, to make it adhere the better. If the sides of a Cottage are weather-boarded and painted, the inside must be plastered or clayed, to render it habitable. For such Cottages as are brick built, a nine-inch wall, plastered on the inside, will be sufficient; provided that the eaves are made to project properly, and that the house stands in a sheltered situation.

Building of *Pisé* is considered as very proper for Cottages, and when open to the sun and air it will bear a stucco, or colour, but it must not be in a confined, low, or damp situation. For common farm sheds and walls it is used in many counties with the best

effect, and taking the soil into consideration, might be brought into more general use where clay and lime are found upon the spot; but if cartage of these materials be required, the saving in point of expence admits of much doubt.

PLATE I.

Is a Design with the Plan for a Labourer's Cottage. This may be built of brick, rough stone, lath and plaster, or clay; the roof thatch: the appearance is picturesque and suitable for any situation.

PLATE II.

This Plate shews the Plan and Elevation for a double Cottage, which may be built of similar materials as the above. Cottages built in pairs, or double, as this is proposed to be, have several advantages besides that of being more cheaply constructed. The dotted lines across the bakehouse and living-room shew the joists for the bed-room floor.

PLATE III.

Sections of the foregoing Design. The several parts are fully explained on the plate, and the observations on construction already given will, I hope, fully explain the intention and usefulness of these plates to any person who may wish to carry such buildings into execution. That the Labourer should have a comfortable habitation will always afford real satisfaction to the benevolent mind.

PLATE IV.

Plan and Elevation of a Cottage to which is attached a Blacksmith's Shop. The outline of this building is varied and picturesque; it is scarcely necessary to observe that the place allotted for the blacksmith's shop would as well suit a carpenter, or any other business requiring room; if turned into a stable or cow-house, the whole would become a small farm-house.

OF FARM HOUSES, &c.

PLATE V.

Is a Plan and Elevation of a Farm-House and Offices suitable for a Bailiff on a large estate. The conveniences of this plan render it a proper residence for a farmer or bailiff; the parts lie well together, and the whole may be built of brick, stone, or lath and plaster, as most convenient to the situation. It is needless here to state at large the particulars of the materials and construction of this kind of buildings, as generally they must, for economy sake, be built of those materials which are nearest the spot, and, usually, these are also best suited to the locality and character of the situation. No person will think of proceeding to the construction and internal finishings, without consulting and employing some well informed surveyor or carpenter, who is competent to direct and estimate the costs of buildings of such consequence.

PLATE VI.

Elevation and Chamber Plan of a Farm-House, of which the Ground Plan is on the Farm-Yard Plan, *Plate XIV*. The accommodations of this house are proper for a bailiff, who has a number of servants under his immediate care, on a large domain. The common parlour overlooks the farm-yard, and the approaches to the other parts of the concern; the beds are numerous, and calculated for a large establishment.

PLATE VII.

Design for a Farm-House or small Villa. The apartments in this plan lie snug and compact, in character with the exterior of the house: this design is suitable for a respectable family residing on a small estate, or for a villa on a rising spot.

PLATE VIII.

Elevation and Ground Plan for a Villa. The accommodations shewn in this plan are suitable for a gentleman of rank, or of large estate, who lives in a style of elegance becoming a landholder of extensive possessions, residing on his own domain. The apartments are numerous and spacious, the elevation neat and important.

OF FARM-YARDS, BUILDINGS, &c.

The construction and arrangement of his farm buildings are of the utmost importance to a tenant; if the offices are improperly erected, he suffers many inconveniences, and even losses; the security of his grain, the labour and value of his horses and other cattle; the safety and duration of his implements, are all dependant on the perfection or imperfection of his offices.—“To save is to gain.”

The leading principles in planning a farm-yard are, easy access from every part of the estate and roads; that it stands sheltered, is well supplied with good water, and is easily overlooked from the house: the situation should be elevated rather than low, as conducive to health; it also facilitates the labours of the farmer, and affords the best opportunity of arranging every building properly, agreeably to its particular use. In low situations, the sample of corn is frequently injured by humidity.

It is always an object to screen a farm-yard, and to obtain an extent of wall at the least expence; single sheds are therefore to be preferred, they require only a slight construction, and may be made of rough hewn materials: being extended they give an opportunity of having two or three separate yards, which, according to the nature of a farm, are often wanted. They are extremely beneficial also, for being small they afford better shelter, the litter is better trod, and the facility of making manure is greatly increased.

When a farm-yard is to be entirely new made, the ground intended to be occupied should be first levelled, and if the nature of the soil is loose, some clay and chalk should be added to make the bottom firm, for unless this precaution is taken the earth will absorb that moisture which is essential to manure. The bottom of a farm-yard, only, should be a little lower than the buildings which surround it, as shewn by the sectional line on *Plate X*, with drains to take off superfluous water; and if much manure is required to be made upon the spot, litter should be spread frequently over the several yards allotted to the different sorts of cattle.

All the buildings should be sufficiently above the general level to admit drains to convey the liquid manure into the yard; and it might be prudent, in case of much rain, to be able to conduct the liquid manure, unmixed with rain, to a reservoir near the dung-hill, and occasionally to scoop upon it in dry weather. Some persons prefer a dunghill in the centre of the yard, with drains from the stables, feeding-sheds, house, &c. leading into it: but this does not effectually answer any good purpose; for being exposed, the water is frequently forced into it from all parts, and in such quantities, that the dung-pit is filled, and the manure is impoverished. When the litter is sufficiently trod, the sooner it is removed and made into a dung heap the better; and if fresh vegetable matter is mixed with it to force the heat, the greater will be the strength of the manure, and the sooner will it be fit for use.

These plans for farm-yards are constructed on the most approved principles of modern agriculture, which are so fully explained and demonstrated by Mr. Arthur Young in his *Farmer's Calender*, that, lest his book should not be in the hands of my reader, I shall beg leave to give his observations (page 311) on this important subject. They will also explain the principles on which these Designs have been planned.

“ This month (May) being, in general, the period for turning out various sorts of live stock to grass or clover, it is now a question which demands the young farmer's very serious attention, whether he should comply with the more common custom of feeding off certain crops, or whether he should determine to pursue the soiling system of mowing and giving them green in the stables, stalls, yards, &c. Considering the decisive superiority of the latter mode of consumption, there is not a fact in husbandry which ought to create so much surprise as the general custom, all over the kingdom, of feeding cows, young cattle, oxen, bullocks, &c. in the fields; and the almost general practice of managing the teams in the same way. Enlightened farmers have in many districts adopted this system for horses, but still reject it for cattle; and it will probably take a century to render it as universal as it might be, most profitably. The objections to it are not of any importance, even if stated in the strongest manner. It has been argued that the expence is an object; and that cattle will not thrive so well, nor will cows give so much milk as if fed in the field. That the expence is something cannot

be denied, but that it amounts to any thing considerable is contrary to fact. Mr. Mure fed 240 fattening oxen in sheds through a whole summer by the mowing of one scythe: if the attendance upon the beasts be added to this amount, the whole will evidently come to a sum which, when divided either per head, or per acre, will be so low, as to do entirely away this objection. As to the question of thriving, the assertion has been made as far as it has come to my knowledge, without a trial, and, consequently, it is mere theory. The beasts mentioned above were all sold fat at Smithfield, and did as well as similar beasts had done fed abroad in the most favourable seasons, and better than in any summer not remarkably favourable."

"Every one knows how tormenting flies are to cattle when abroad; ride into a field in summer to look at stock, and where do you find them? Not feeding, but standing or resting under trees, in ponds, in rivers, and if there is no better shelter, in ditches, under brambles, in a word, any where but feeding in the open air. What they graze is in a morning and evening, and, in many cases, they lose in the heat of the day all they gain at those moments of their comfort. To this superiority we must add that of the main object, which is the dunghill; in one case this is accumulated in a degree even superior to what is effected in winter; in the other it is scattered about the pastures, and nine-tenths of it carried away by the flies, or dried almost to a caput mortuum by the sun. The warmth of the season in summer promotes the fermentation in a mass, and speedily prepares it for use, in whatever state the farmer wishes to have it. The prodigious superiority of thus raising a large and very

valuable dunghill in one case, and none at all in the other, ought to convince any reasonable man that there is not a practice in husbandry so decidedly superior as this of soiling, were there not one other reason for it than what have already been produced."

"Cattle when soiled upon any kind of green food, as tares, clover, chicory, lucerne, or grass, make so large a quantity of urine as to demand the greatest quantity of litter; the degree of this moisture, in which their litter is kept while the weather is hot, much assists a rapid fermentation, and great quantities of carbonic acid and hydrogen are generated. The winter's cold, with superfluous water by rain or snow, has a contrary tendency, the manure is, comparatively speaking, weak and poor."

"It is a fact, that stock not in fattening condition make good dung in summer, but they do it not in winter."

"But there is another equal to this important one; and that is, the food thus given going so much farther than it will do when grazed where it grows. This superiority has, in certain experiments, been marked as amounting to double, thrice, four times, and even five times as far, as when eaten in the field: and when we recollect the old remark, that a beast feeds (or consumes) with five mouths, and it might be said to be with seven, we shall not be surprised at those remarks."

"However, that food thus given goes much farther cannot be

doubted: thus a much greater stock may be supported by the same farm on one system, than there can be on the other."

Having thus fully, and I hope clearly, explained the principles on which these plans have been formed, I shall not further enlarge on them here. At the end of the book will be found detailed explanations of the construction of the several necessary buildings; by attending to which, a Carpenter, Steward, or any other person, may be able to erect all the principal buildings of an extensive farm, whether grazing, dairy, or arable.

PLATE IX.

Plan of a Farm-House and Farm-Yard, on a small scale. The different buildings properly attached to a small farm are here well combined; the requisite details of their construction will be found on the following plates. The common sitting-room of the dwelling overlooks the whole of the premises, and the domestic accommodations are suitable to the size of the concern.

PLATE X.

Plan for a Farm-Yard, &c. of an octagon shape. The dwelling occupies one side. The whole of this establishment lies immediately under inspection from the sitting-room. The accommodations are ample for an extensive concern. The yards are well screened from the winds, and separated by pales, according to the dotted lines, for different kinds of cattle. The line *ab* shews the declivity which should be given to the area of the yard, as explained in the preceding observations on farm-yards.

PLATE XI.

Chamber Plan and Elevation of the Dwelling-House on the preceding plate. The accommodations are sufficient for a numerous family, the elevation is neat and suitable; the exterior of the farm buildings is shewn adjoining the house.

PLATE XII.

Plan for a Farm-Yard, proper to be attached to the residence of a nobleman or gentleman. In the foregoing observations I have given the opinion of a most respectable agriculturist on the advantages of stall-feeding cattle, a practice highly to be recommended. In this plan, therefore, I have provided standing for fourteen oxen, with the requisite accommodations, (the particulars of the construction are shewn on Plate XIX), also the other necessary farm buildings, combined with a small dog-kennel, piggery, &c. as is more fully explained on the plate.

OF DAIRIES AND DAIRYING.

It would be difficult to construct a Dairy exactly suited to the extremes of winter and summer; for in summer it cannot be too cool, nor in winter too warm; and, perhaps, where so much importance is attached to the consideration of a proper temperature, it might not be a useless expence, in a large establishment, to construct one dairy for summer, and another for winter; but as the expence of two such buildings would prevent their becoming general, I shall endeavour to propose a method of forming one which

though intended to suit the summer, by the help of artificial means, may be rendered equally useful for winter. I suppose the dairy to be more than an ordinary height, ten or twelve feet, with a coved ceiling up to the collar beams; from these should rise a ventilator about two feet six inches above the roof, similar to the elevation in Plate XIII: the sides of which are boarded, and capable of being opened or shut at pleasure; before these must be placed canvas to keep out insects, at the bottom of the ventilator canvas should be fixed in slides to be taken down and cleaned occasionally; and, below these, wooden sliding shutters in grooves, to be opened or closed as wanted. In summer they would be opened, of course, and in winter the luffer boards when closed, with the sliding shutters would exclude the cold and damp air; on the north side two glazed windows made to open, having oiled paper blinds placed before them; exactly fitted to the windows, and also canvas on frames for use in summer: these windows would admit light enough for the necessary operations of the dairy in winter, and when opened in summer, they would keep it cool. But to obtain the requisite degree of warmth in winter, I should recommend the following simple method. The scalding-room, which is understood to be on the south side of the dairy, should have a steam apparatus, consisting of a worm pipe within the copper, similar to those used in distilleries; this is conveyed along the dairy in another pipe about two inches larger in diameter; in the larger pipe, at different intervals, cocks should be inserted to emit the heated air: this may be called not improperly a steam retort. The pipe being conveyed all round the dairy, or to any part of it, will diffuse a kindly and beneficial warmth, without any smell whatever; this circumstance gives it a de-

cided preference over the direct use of fire, which always taints the air, and is prejudicial to the milk: the sides and ceiling of the dairy should be carefully plastered, filling up every crack; the floor may be paved with stone, or with ten-inch tiles, neatly jointed, and having a proper slope with a quick current. If the dairy has a ceiling the roof may be tiled, but if it be plastered upon the rafters, in that case it is better to thatch it with reeds. The outer walls, if brick, must be at least fourteen inches thick.

The Churning-Room requires a thorough draught of air in summer, but in winter the churning may be done in the scalding-room for the sake of warmth. The sides and ceiling of this room should be carefully plastered, and the roof may be covered like the dairy. The floor should be paved with stone, or with ten-inch tiles.

The Scalding-Room should be on the south side of the dairy, and should have an outer door, by which the coolers may be carried out for the purpose of being set in the sun as soon as scalded, which dries and sweetens them; but in case of wet or cold weather, a fire must be lighted to dry them before they can be returned into the dairy. In this room is a large copper, nearly over which is placed a ventilator, that the steam may not hover about, but instantly ascend: if the plan of warming the dairy and churning-room by steam be adopted, a small copper should adjoin the great copper; this might also serve to steam potatoes for pigs, &c.; and in this case the scalding-room would serve as a pigs' kitchen. A pump to furnish water for filling the copper and washing the dairy, must be fixed as convenient, and water must be conveyed by pipes to the

churning-room. This apartment may have a nine-inch wall, be covered with tiles, the floor paved with brick or stone, and the inside plastered.

The Store-Room is on a level with the dairy, if used for butter; if for cheese it should be sunk sufficiently low to admit a cheese room over it.

The lower room should be paved, and the walls and ceiling plastered; it should have no window, and the door should be made to fit close. When the cheese has lain in the upper room, and heated, in due season, it should be brought down and laid upon the floor of the lower room to mellow.

The upper room should be plastered, its floor boarded, and when spread with fine hay it is ready to receive the cheese; this room must have but little air, and therefore a small ventilator, with a slide before it, will be all that is necessary.

PLATE XIII.

Plan of a Farm-Yard and Dairy-House, with their necessary accompaniments, according to the maxims adopted in the preceding practical observations, which are principally selected from *Twamly's Dairying exemplified*; but are also corrected by information derived from Dairy Farmers. The explanations on the plate mark the uses of the several buildings; the construction of the Barn is clearly laid down on Plate XX, and that of the Piggery on Plate XVII.

PLATE XIV.

Plan of a Farm-House, Yards, and necessary buildings intended for the fattening of cattle, on an extensive scale. The domestic accommodations in this plan are ample for an establishment analogous to the supposed size of the farm. The Chamber Plan and Elevation are on Plate VI: the whole of the buildings lie as compact as possible. The yards are well screened from the winds.

DOG-KENNEL, HUNTING-STABLES, &c.

PLATE XV.

Plan for a Dog-Kennel, Hunting-Stables, Coach-House, Cow-Yard, Poultry-Yard, &c. proper for a Nobleman or Gentleman.

In constructing the dog-kennel great regard must be paid to extreme cleanliness, and to the comfort of the hounds; their exquisite sense of smelling (on which alone the sport they yield depends) must have no stench or effluvia of a dirty kennel to injure it. Dogs are by nature cleanly, and require air and fresh litter to keep them healthy and vigorous. A situation retired from a road, or pathway, and having an eastern aspect, is to be preferred; the number of hounds must determine its size. There should be two lodging-rooms under the same roof, separated by the feeding room, and when the kennel is washed the hounds must be removed into the second room, by this means the injuries attending a damp lodging are prevented; it also serves to draught off the

hounds intended to be hunted next morning. A breeding kennel, with a feeding room, and another smaller for sick and lame hounds, are highly necessary; also a boiling room, a flesh room, &c.

The benches to sleep on should be six inches from the ground, lightly constructed, with hooks and hinges in the wall, that they may be turned up when the kennel is washed; the sides of the benches must be boarded to prevent the hounds creeping under, and the bottom of the benches must be perforated to let off the urine, or the water when washed. The room should be paved with ten inch tiles, with a quick drain. The sides and ceiling are plastered, and the doors are opposite to the windows. The court yards may be neatly paved, and shaded by lime trees or horse chesnuts, with a bason of water in the middle, of sufficient size to admit the dipping of a bucket; otherwise a pipe might convey the water to the kennels in order to wash them; if there is no brook at hand, a large bason of water is necessary as a bath for hounds lamed in the stifle, or strained. Accommodations for separating the young hounds, and the dogs from the bitches, will prevent many accidents.

The Boiling-Room. A copper of cast iron proportioned in size to the number of hounds, with a steam hole over the copper; a pump conveniently placed to force the water into the cisterns for supplying the copper; and, in case the situation has not the advantage of a running stream, a large cistern, with pipes, might supply the basons in the court yards, &c.; the floor to be paved and the sides to be plastered.

The Feeding-Room fitted up with troughs of a size easy to be moved, and cleaned: wide at the bottom, with wooden covers; the floor paved; the sides and ceiling plastered.

The Hunting-Stable. The walls and ceiling plastered; the partitions boarded up to the ceiling, with a door to each for the grooms to range the stable. Small circular hay racks, mangers, and heel posts rounded; rollers for halters, and ventilators in the ceiling. The floor paved with clinkers, and a gentle current to the gutter; the floor of the hayloft boarded; the sides and roof to the collar beams plastered.

The Saddle-Room, paved and fitted up with a small fire-place; saddle and bridle-pegs, and a closet for brushes, oil, &c.; the stairs lead to corn-chamber, hayloft, and bed-room, over the saddle-room.

Harness-Room, fitted up like the saddle-room, with fire-place, harness-pegs, and closet.

Coach-House, sides and ceiling plastered, and floor paved brick on edge, with a current.

To this plan are added the requisite conveniences of a cow-yard, piggery, and poultry-yard, with a suitable residence for the huntsman, &c. The elevation in the middle of the plate represents the exterior entrance into the court yard, and offers a simple, yet elegant character, which an establishment so noble and extensive demands.

PLATE XVI.

Plan of a Piggery, Poultry-Yard, and small Dog-Kennel, with an elevation. This plan I consider as suitable to many gentlemen who are desirous of keeping the other parts of their premises neat and clean.

Poultry. The yard should be enclosed and made secure by a net put across the top, or by lattices. The sheds to be fitted up with perching poles. The yard to be gravelled; a bason of water in the area; a trough for food under the open shed, contrived to be filled from the outside; the hatching shed should have a warm aspect, and be parted off, so that the hens may not interfere, but be free of each other.

The Dog-kennel to be raised four inches above the area of the room, and boarded. The area is brick paved, with a bason of water, and a trough for food. The back of the kennel to be nine inches thick, the front and sides boarded and tarred; the roof thatched.

Piggery. The steaming room is fitted up with pump and cistern to wash potatoes in, also a cistern to mix the pigs' meat: a cask placed at *A*, the contents of which is steamed by the copper in the boiling room while the meat is boiling for the dogs. The stairs lead to a granary containing corn, &c. for the use of the pigs, poultry, and dogs.

PLATE XVII.

Plan, Elevation, and Section, of a Piggery, shewing the particulars of its construction, &c.

The sties should front the south, and be kept dry and warm; before them is an area, littered, with a trough to hold food; the roof is thatched. The floor of the sty is a little above the level of the area, which must be paved with brick, having a considerable descent to carry off urine and wet. The back part of the sties is a nine inch wall; the sides and front boarded and tarred. The troughs are made with flaps to prevent the rain from mixing with the food; they extend about nine inches beyond the front on the outside; a flap lifts up, in order that a man may pour in the pigs' meat, and with a stick force it backwards and forwards, till it be properly dispersed along the trough, which should have as many divisions or flaps as there are pigs in the sty. As the area will require to be often cleaned, water must be at hand, conveniently placed, that when the litter is removed the sty may be drenched, and made thoroughly clean; for although pigs feed coarsely, and frequently wallow in filth, yet, in the course of fattening, it is well known they delight much in a clean sty and fresh litter. Where it is the custom to feed hogs on potatoes, a kitchen should be provided with a proper steaming apparatus for that purpose. See the next plate.

PLATE XVIII.

Plan and Section of a Piggery on an extensive and appropriate Plan.

The steaming-room is fitted up with a small copper, and a barrel placed over it to contain the potatoes. The flue is carried up at *A*, to give sufficient space for conveniently admitting the barrel over the copper. The floor is paved; *B* the cisterns for receiving water and for the convenience of mixing the different sorts of pigs' meat, to be bricked, and covered with Bayley's composition, or lead. *C* a covered way, paved, by which the man may feed the pigs, without being wet, the shed also catches the water from the roof of the building, and throws it into the gutters of the pigsties. *D* drains to convey the urine and wet to the dung-pits. *E* troughs for pigs' meat, and water, with flaps in the feeding-passage to pour in the food and water without entering the sty. Each sty to have an open area, 15 by eight feet, and the sty to be four feet six inches, by 16 feet. The surrounding wall is nine inches thick, and seven feet high. The dung-pits have doors at the back by which the manure is removed. *F* cistern and pump, adjoining the potatoe store-house, wherein they are washed previously to being steamed. *G* a cess-pool, to receive the milk and pot liquor from the dairy and kitchen; the divisions of the sties are boarded and tarred: the wall to the steaming-kitchen and the granary over it to be nine inches thick: two windows and two doors to the steaming-kitchen: four luffer board windows and one door to the granary. A moveable step-ladder to communicate with the granary, and the inside to be fitted up in divisions, for barley meal, peas, or beans, &c. with a hand-mill fixed to the chimney to bruise them: it might serve also to grind the horse corn, and the malt.

PLATE XIX.

Plan, Elevation, and Sections, of an Ox-House; shewing the particulars of the construction, &c.

The divisions should be eight feet wide for two oxen. A cistern for water, with a waste pipe in the middle, and a box on each side for cut hay and oil cake. A pipe *b* to conduct the water should be laid from a large cistern fixed in the feeding-passage, supplied by a pump. A hole in the bottom of the oil cake and hay-boxes, lets off the water when washed. A drain *d*, to take off the waste water under the cisterns and boxes. The stalls are paved with brick on edge, having a gentle current, and a drain, *e*, at the heels of the oxen, to convey the urine to a cess-pool, or dung-pit. The feeding-passage, *a*, is paved. The back wall of the ox-house is brick; the roof thatched, that the place may be warm: the front is weather boarded, and tarred: luffer board windows, *g*, are made to open and shut, with a door opposite each stall. The heel posts are shod with iron, and inserted by tenons into the stone, *f*; each division has two cross rails attached, and a ramp rail, to the feeding-passage, to prevent the oxen from hurting each other. See the Section on the line A B.

If oxen are fattened on different food the fitting up of the stalls will require some little alteration: this description relates to oil cake and hay feeding only. The practical part of the construction is fully explained by the plate.

PLATE XX.

Plan, Elevation, and Section, of a Barn, shewing in detail the particulars of the construction, &c.

Where threshing machines are used, low barns only are required, with a granary in a loft, above, to prevent trouble and expence. The advantages attendant on a threshing machine worked by water are many: but when horses are required in the working of such machines, that expence is a diminution of their profit. Independently of threshing, and dressing the corn, the machine cuts chaff, grinds corn and malt, and conveys the corn when dressed to the granary above. Plate XX represents a large common barn, shewing the naked timbers of the floor resting on brick piers, *a*, to give air under the floor. The joists may be old ship timber, or fir, and the floor of good seasoned oak, two inches and a half thick. The sides, *d*, from the floor next the bays, should be boarded to prevent the corn from flying over when threshing. The outside is weather boarded, and tarred. The construction of the roof requires strong principal rafters, good plates, purlins and collars, and that the tie beams be carefully framed together. The common rafters may be any sound rough stuff; if the roof is to be thatched: but if it is to be tiled the rafters must be level.

The method of framing the timbers is fully shewn by the plate.

PLATE XXI.

Plans and interior Elevation of a Brewhouse, Washhouse, and Bakehouse.

In a space, 18 feet by 12, is arranged the whole apparatus necessary to the domestic concerns of brewing, washing, and baking. The jigger-pump, *a*, forces the water into the copper, *b*; the water, when sufficiently hot, is drawn upon the malt in the mash-tun, *c*; from thence it is let off into the underback, *d*, and again thrown by the jigger-pump into the copper, to be boiled with the hops; from the copper it runs into the coolers, *e, e*, and when sufficiently cooled, is let into the working tun, *f*, under the coolers. The steps lead to a platform, where the fire of the brewing copper is managed, the pump is worked, and the boilings are let off into the coolers, &c. An arch, of brickwork, is turned over the washing copper, *g*, to support the brewing copper, and to give space for pouring in water, or for stirring the linen, when boiling. The dotted lines shew the form of the coppers; *h, h*, are square pieces of iron, to be removed when the flue requires cleaning. The oven recedes so far back as may permit a small flue to pass under the platform into the copper flue. The fuel is deposited under the steps. Steam holes should be made over the brewing copper. The floor is paved: the walls and ceiling are plastered up to the collar beams: a damper *i* must be attached to the washing copper.

PLAN AND SECTIONS OF A MALTING.

PLATE XXIII.

This plan is calculated for working 100 quarters of malt per week, being 160 feet by 20 feet on the floors, and which, I apprehend, will be suitable to all places, though certain districts vary in particular parts of the malting process.

The barley is drawn up from the waggon into the crane-house, and is thence discharged into the barley chamber *a*, from which, by small sliding flaps and troughs, the barley is let into the cistern *b*, and having lain there a due time, is shovelled into the couch *d*, where having lain also a due time, it is shovelled out upon the working floors *b*, where, being properly spread, it is moved until it reaches the kiln *f*; it is then conveyed into the kiln and dried into malt, and afterwards distributed for use or sale.

References.—*a* Barley-chamber, or store-room; *b* cistern; *c* pump for supplying the cistern; *d* couch; *e* kiln-house; *f* the drying kiln; *g* the wire work on which the malt is dried; *h* a door into the kiln, to which the workman ascends by a ladder in the kiln-house to examine the process; *i* the furnace; *k* the malt-shop; *l* working floors; *m* doors from the working floors into the kiln.

Fig. A. shews in what manner the timbers of the roof should be framed to prevent its spreading.

Practical Observations.—The outer walls of this building should be of brick or stone; the barrel or cone of the drying kiln should also be of brick to prevent accidents from fire; the bottom and sides of the cistern should be of brick, and covered with Bayley's composition; a cock lets the water off into a drain. The sides and bottom of the couch should be of brick. The floors may be made of thick splents, such as are left out of poles, or of three-eighths or half inch deal, three inches wide, nailed on with spaces between, as laths are usually done: on this is to be laid two coats of well-tempered clay, which makes a good floor; but to make a complete floor, a composition of plaister is much to be preferred. The lower floor may be made on the natural earth if the soil be dry. The wire work for drying the malt on, must be supported by cross bars of iron, and iron uprights.

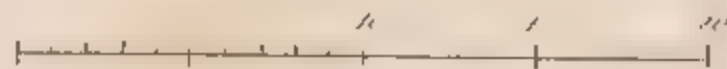
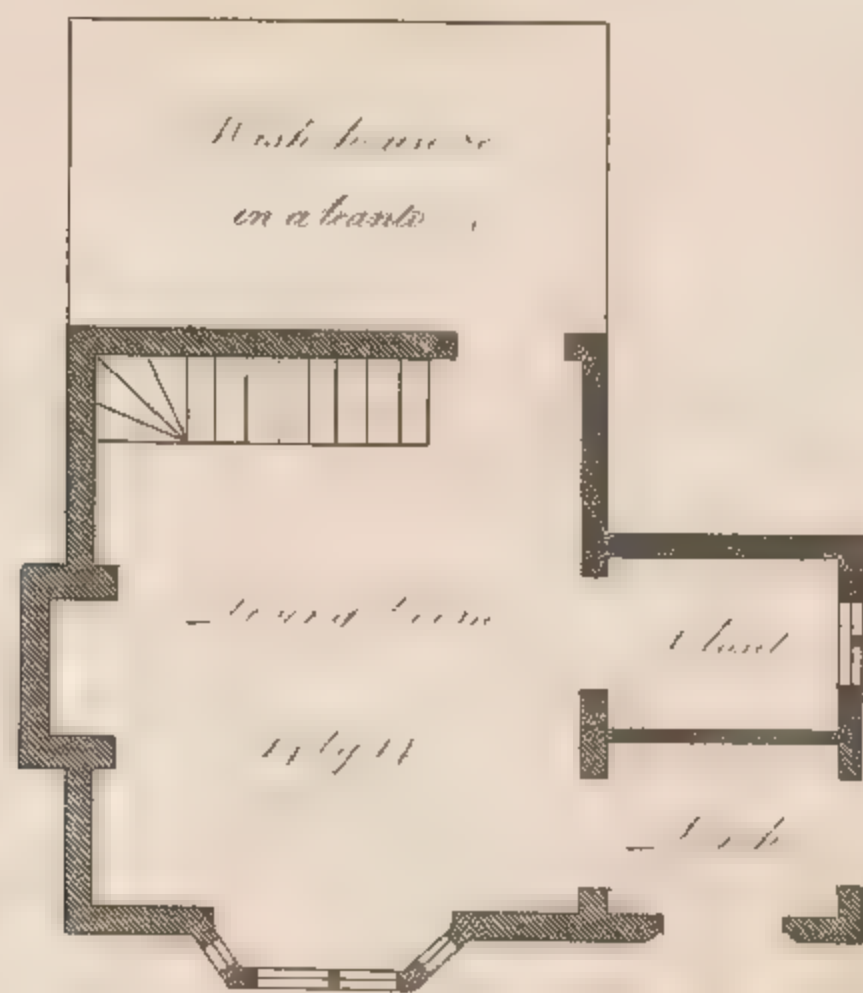
THE END.

ERRATA.

Page 7. line 6. *reaa*, a Farm-Yard should be only a little lower, &c.
17. *for* Dunghill, *read*, Dung-pit.



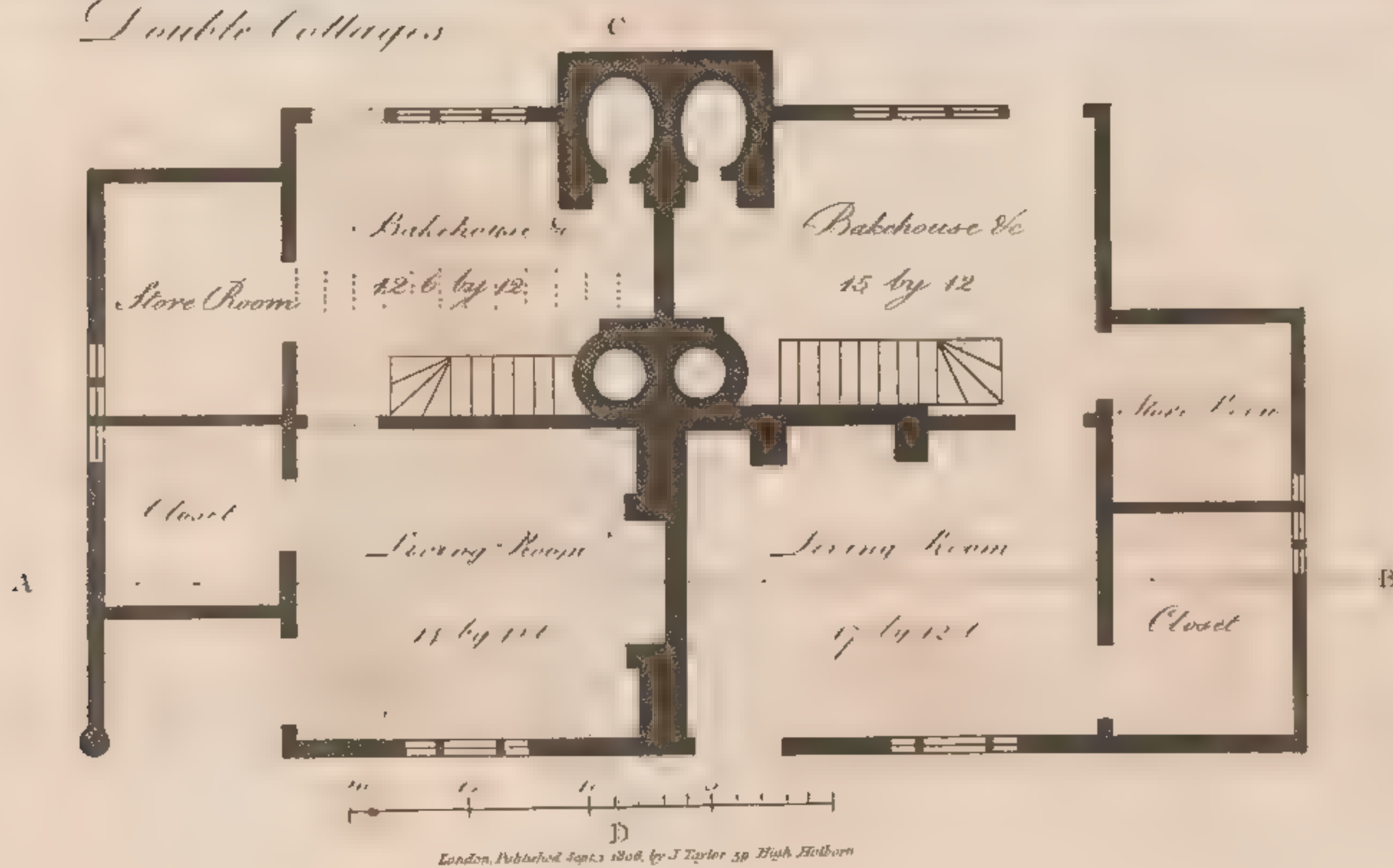
Labourer's Cottage

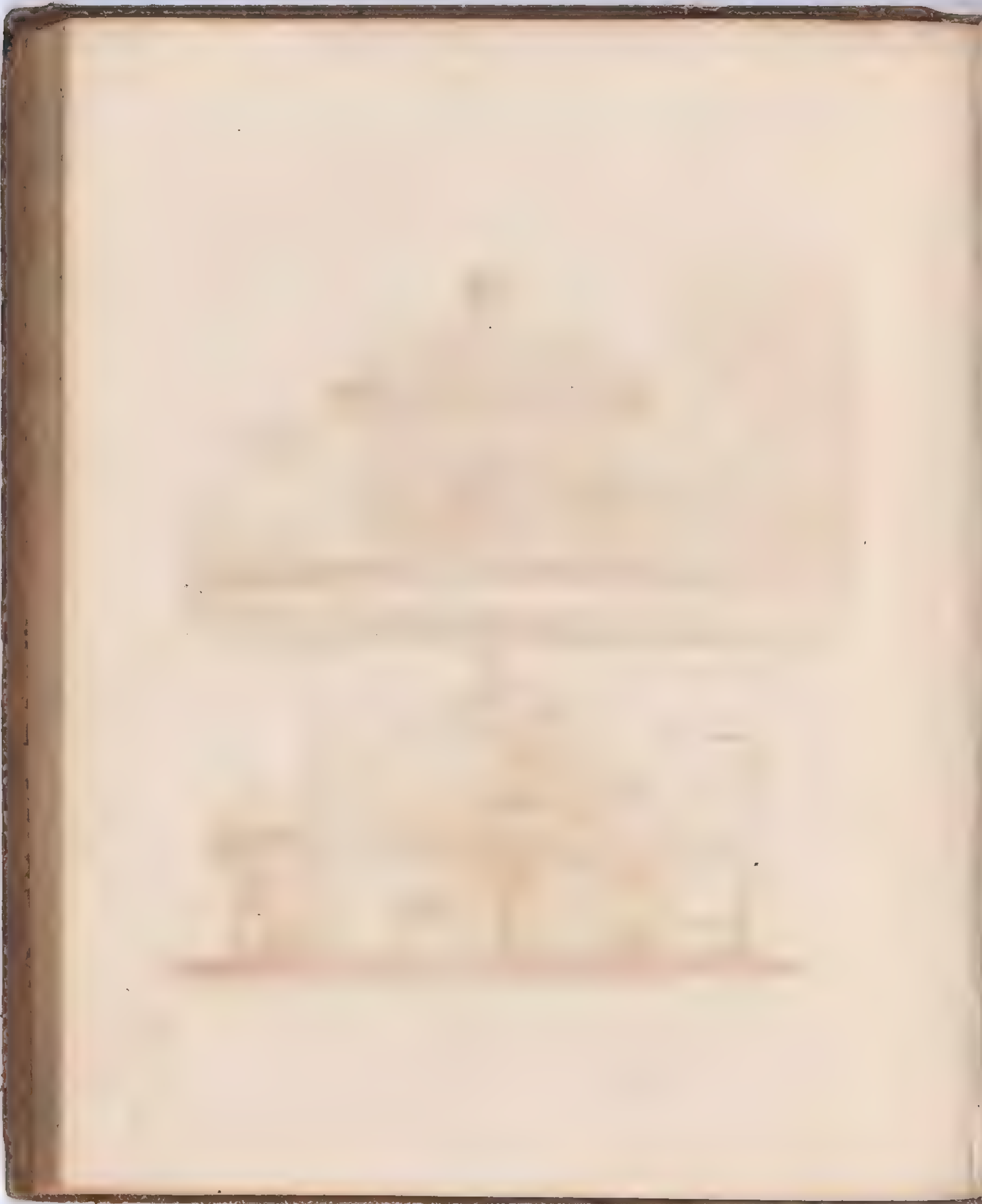


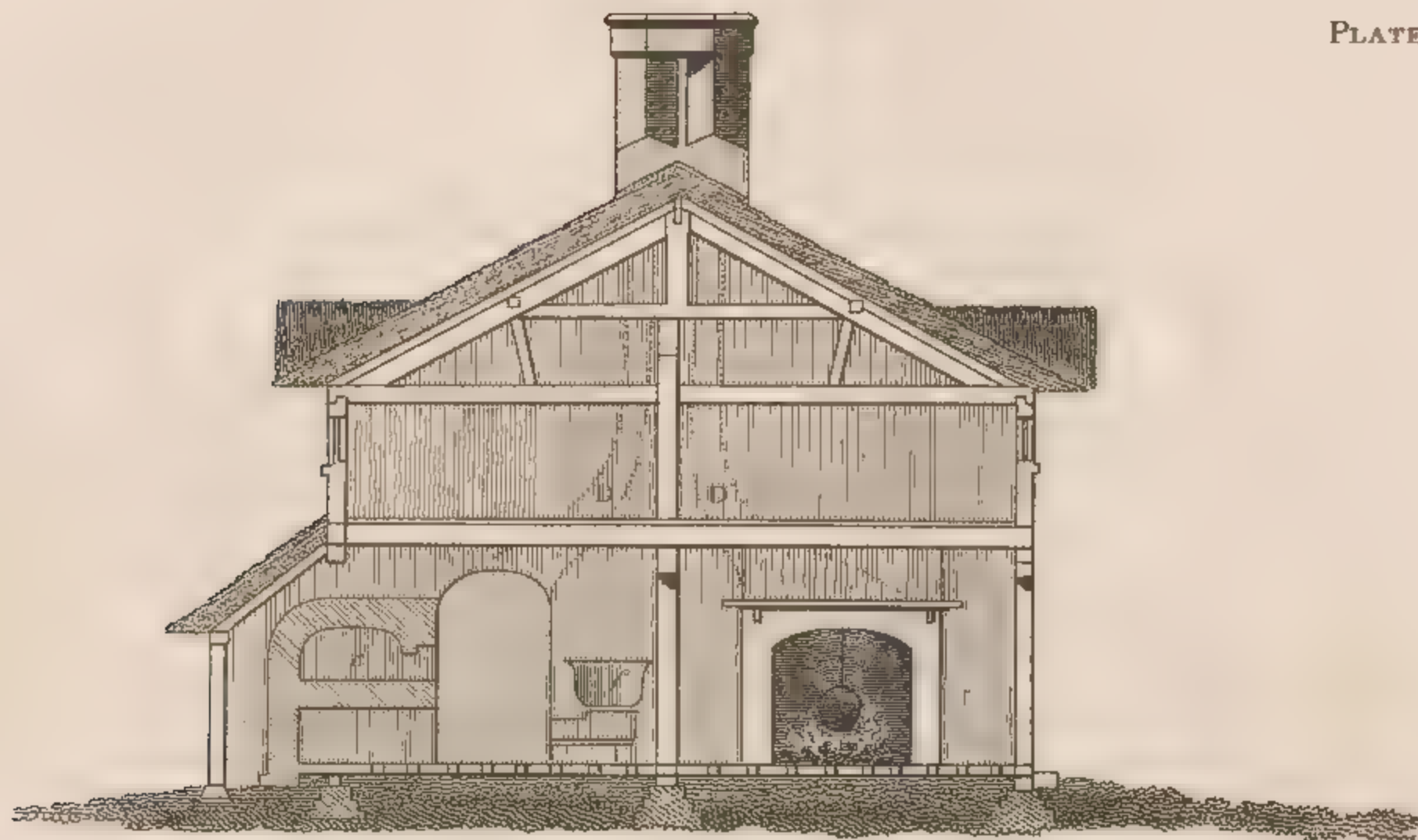




Double Cottages



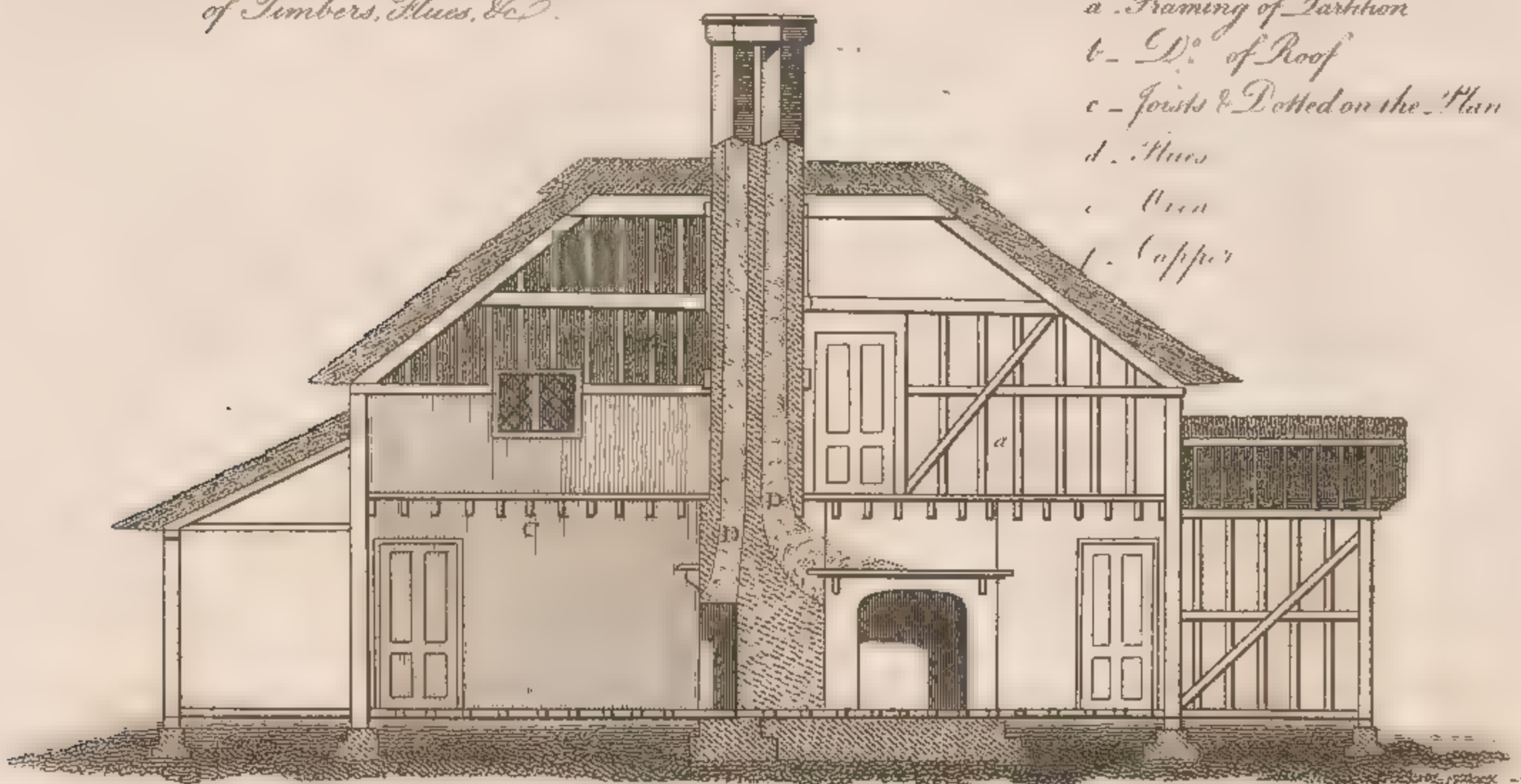




Double Cottages
 Section, showing the construction
 of Timbers, Flues, &c.

Section on the line C D

- a - Framing of Partition
- b - D^o of Roof
- c - Joists & Dotted on the Plan
- d - Flues
- e - Area
- f - Copper

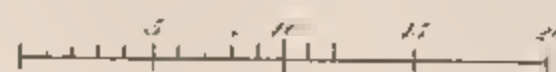
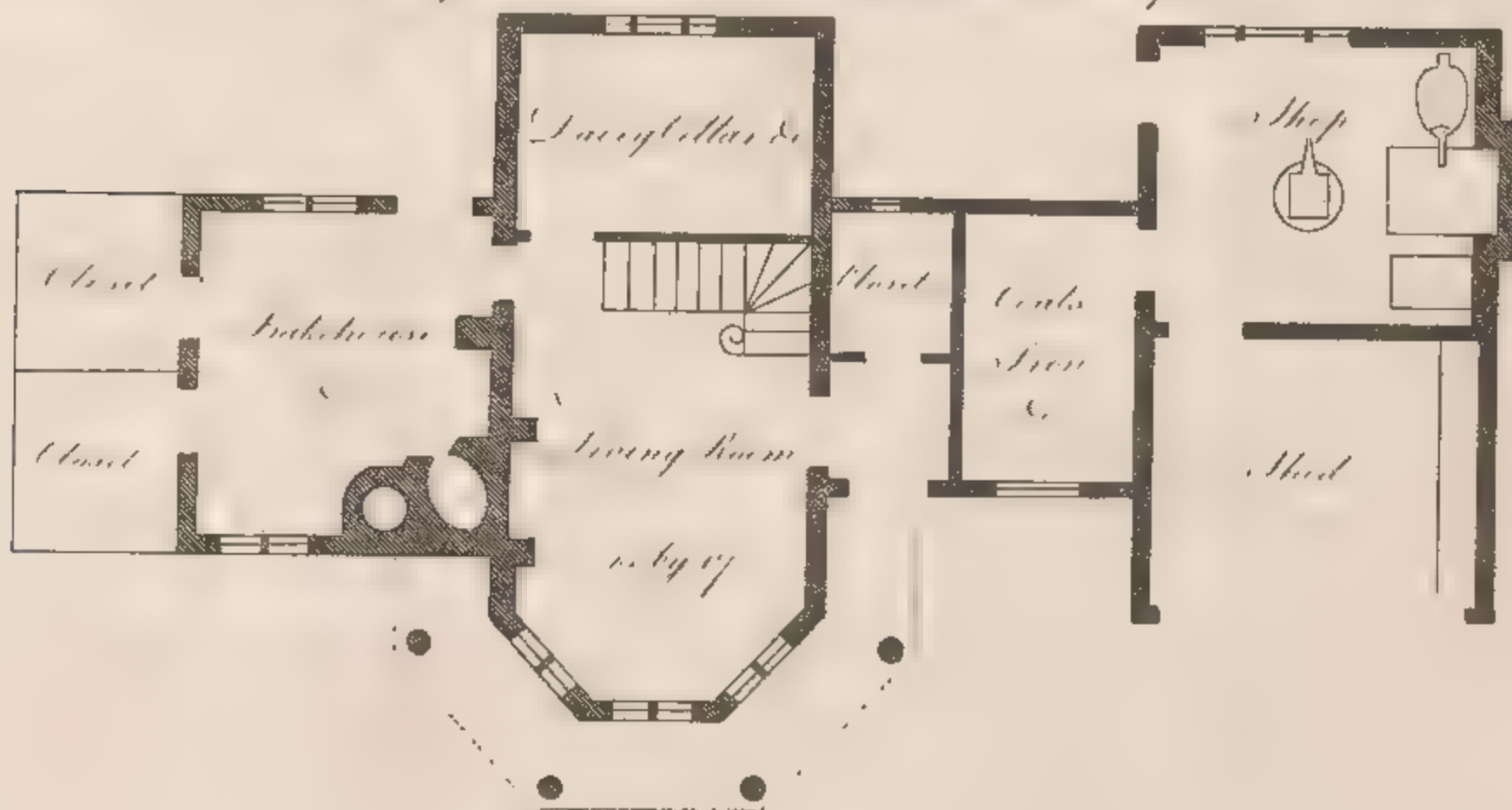


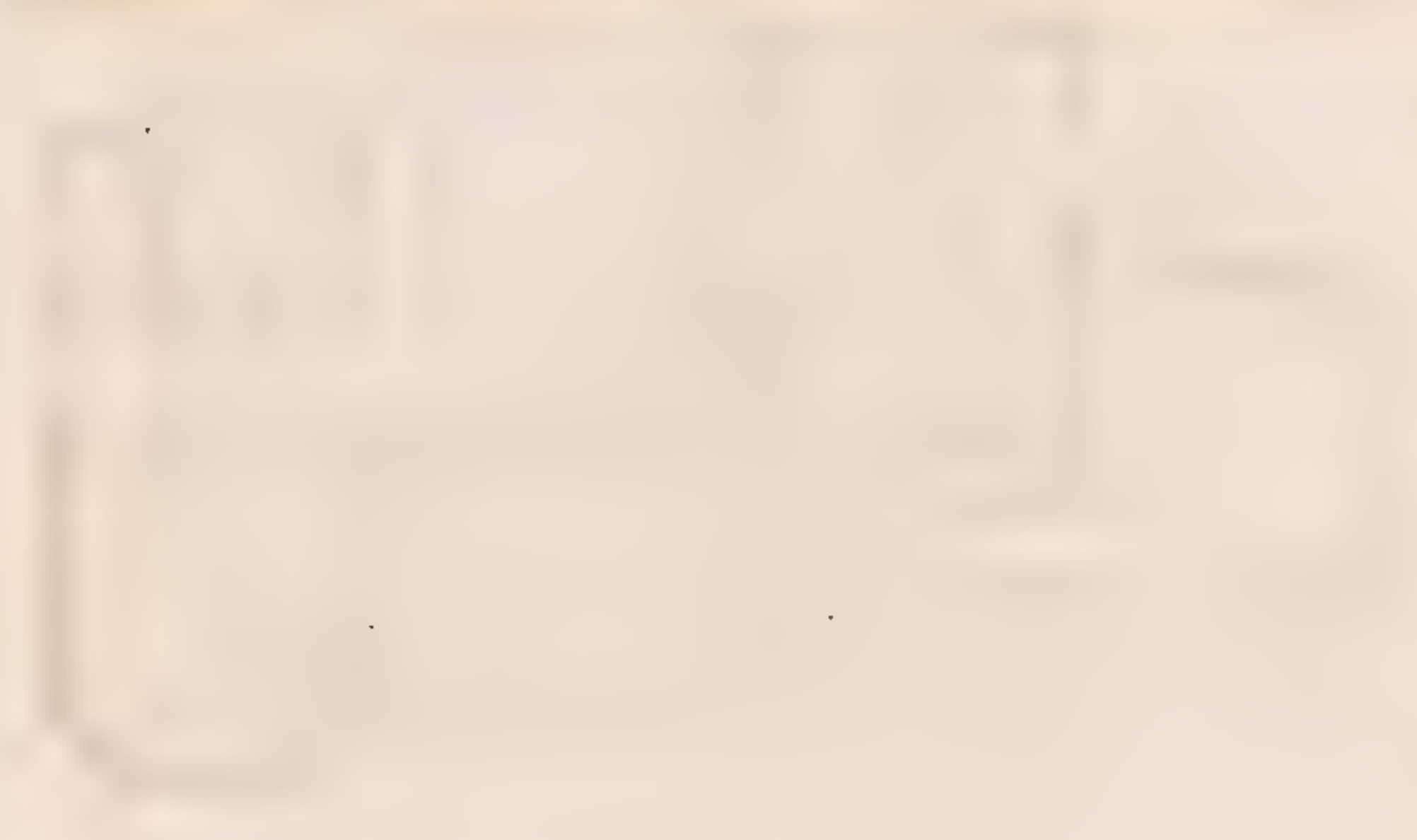
Section on the line A B

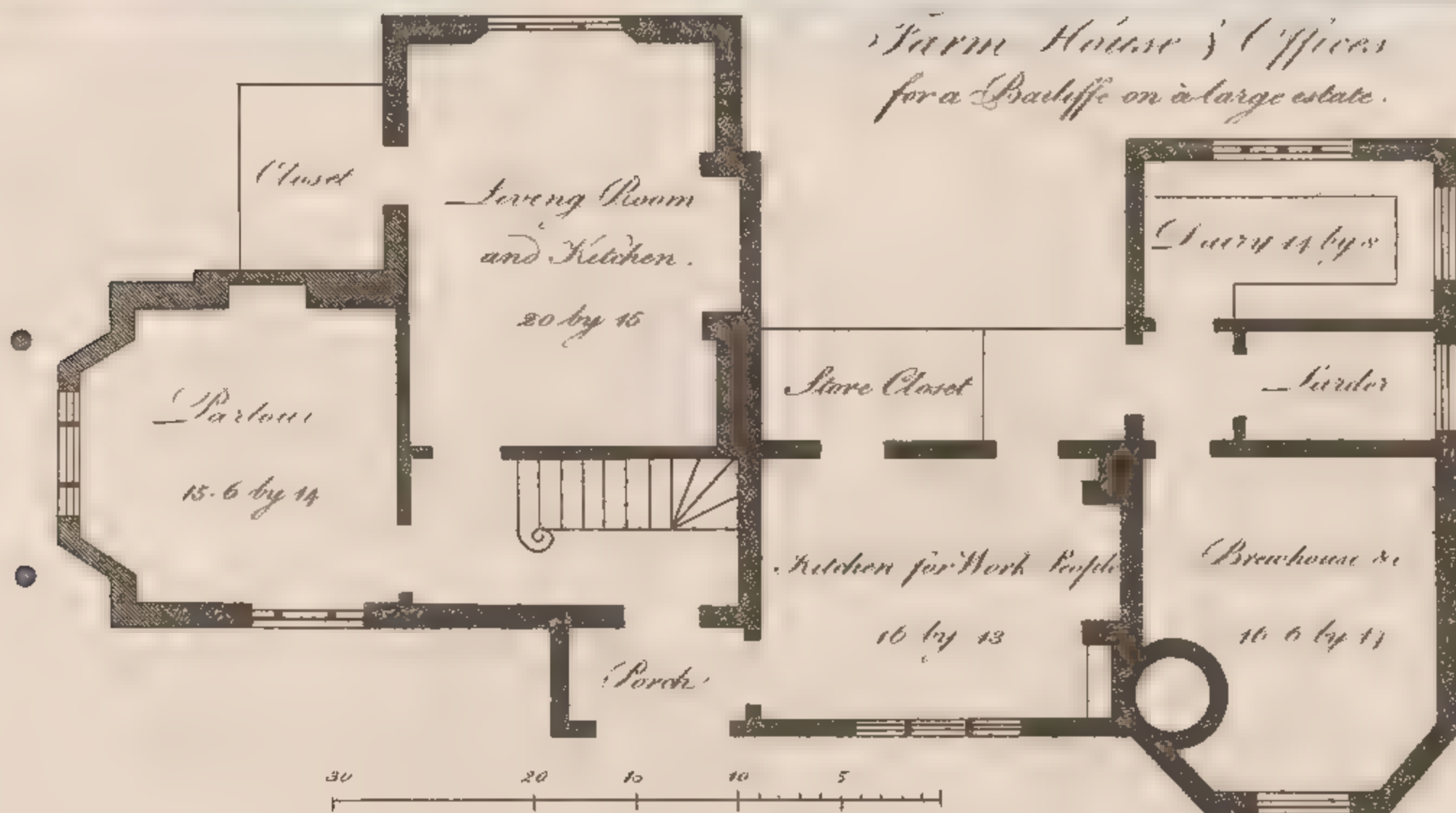




Cottage with a Blacksmith's Shop







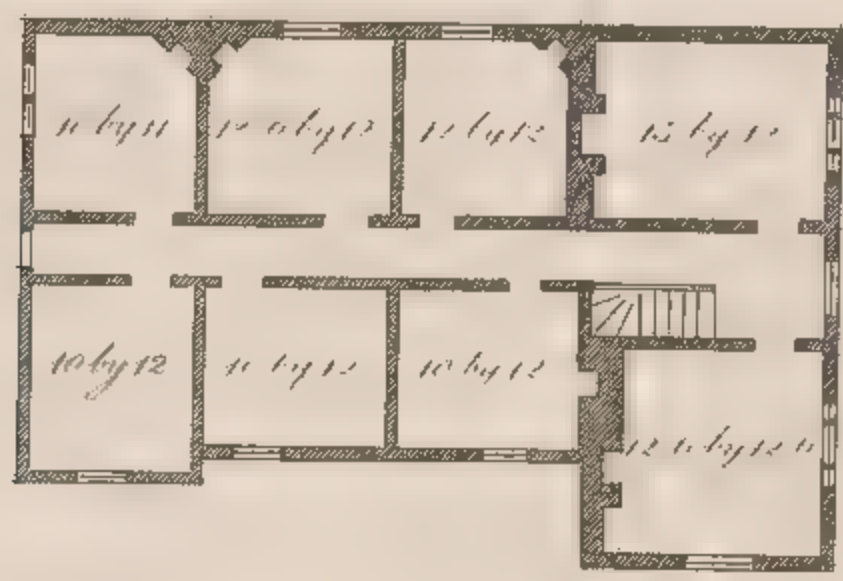
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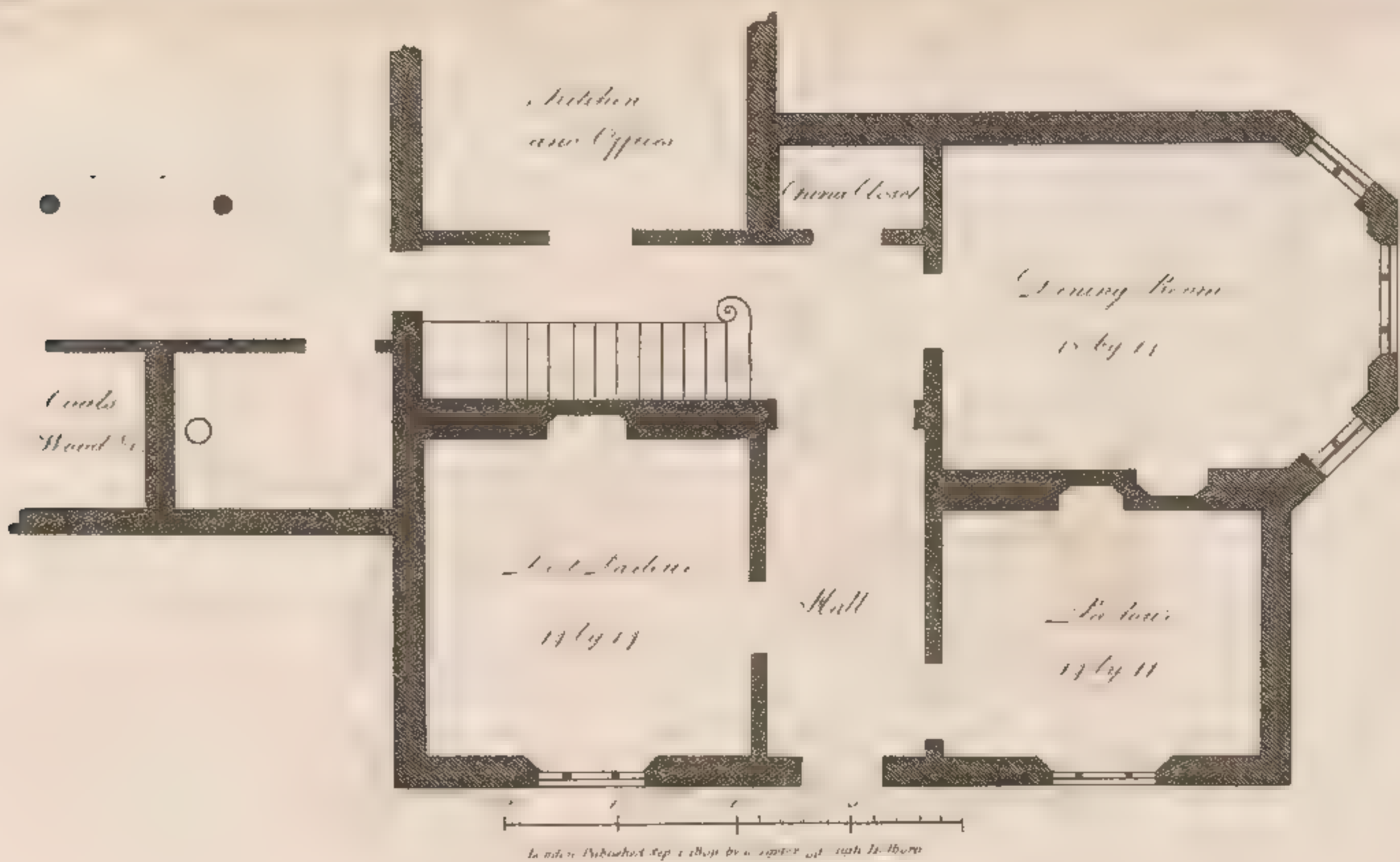


Elevation and Chamber Plan of a Farm House
to Plate 14.

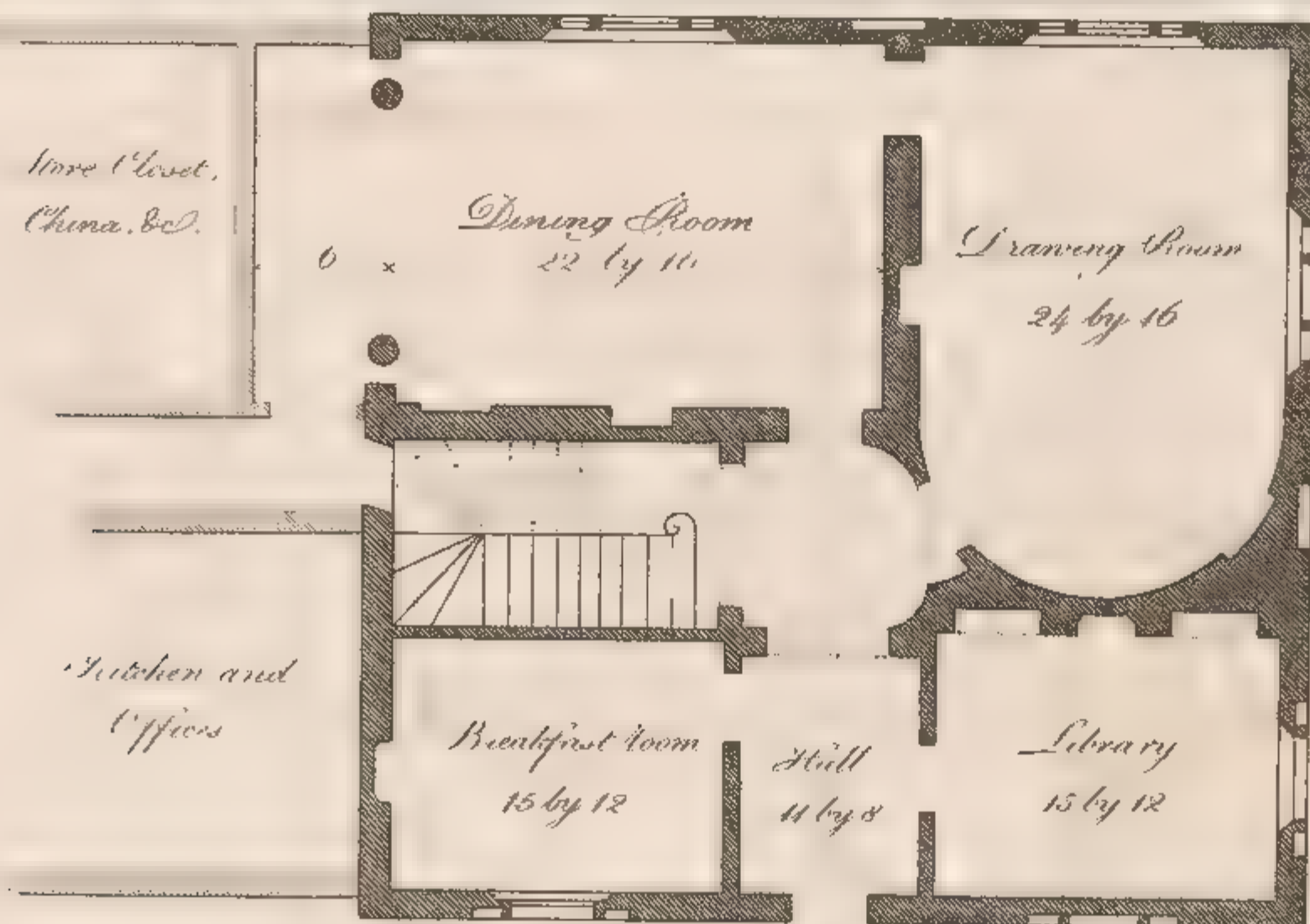
Chamber Plan



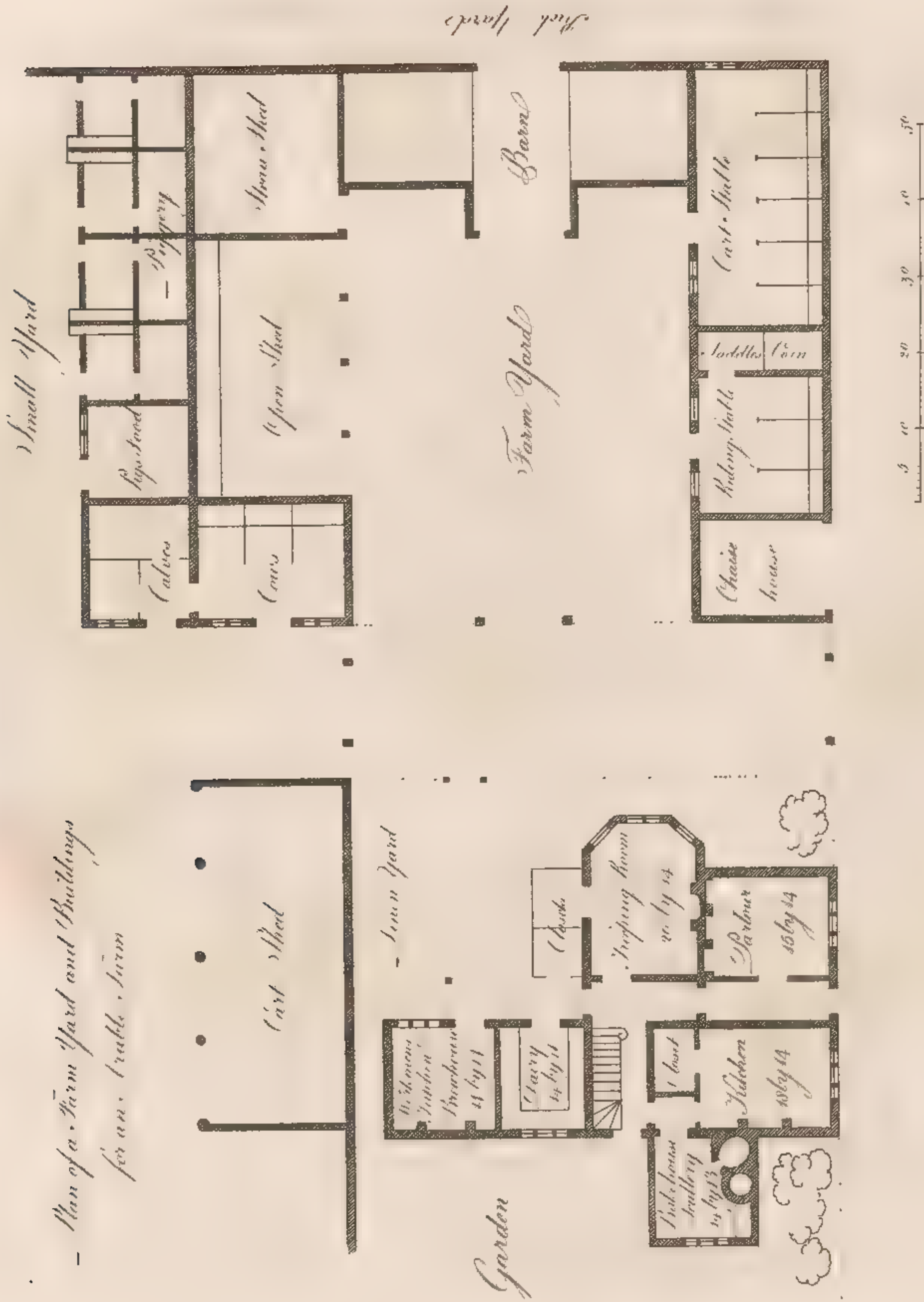




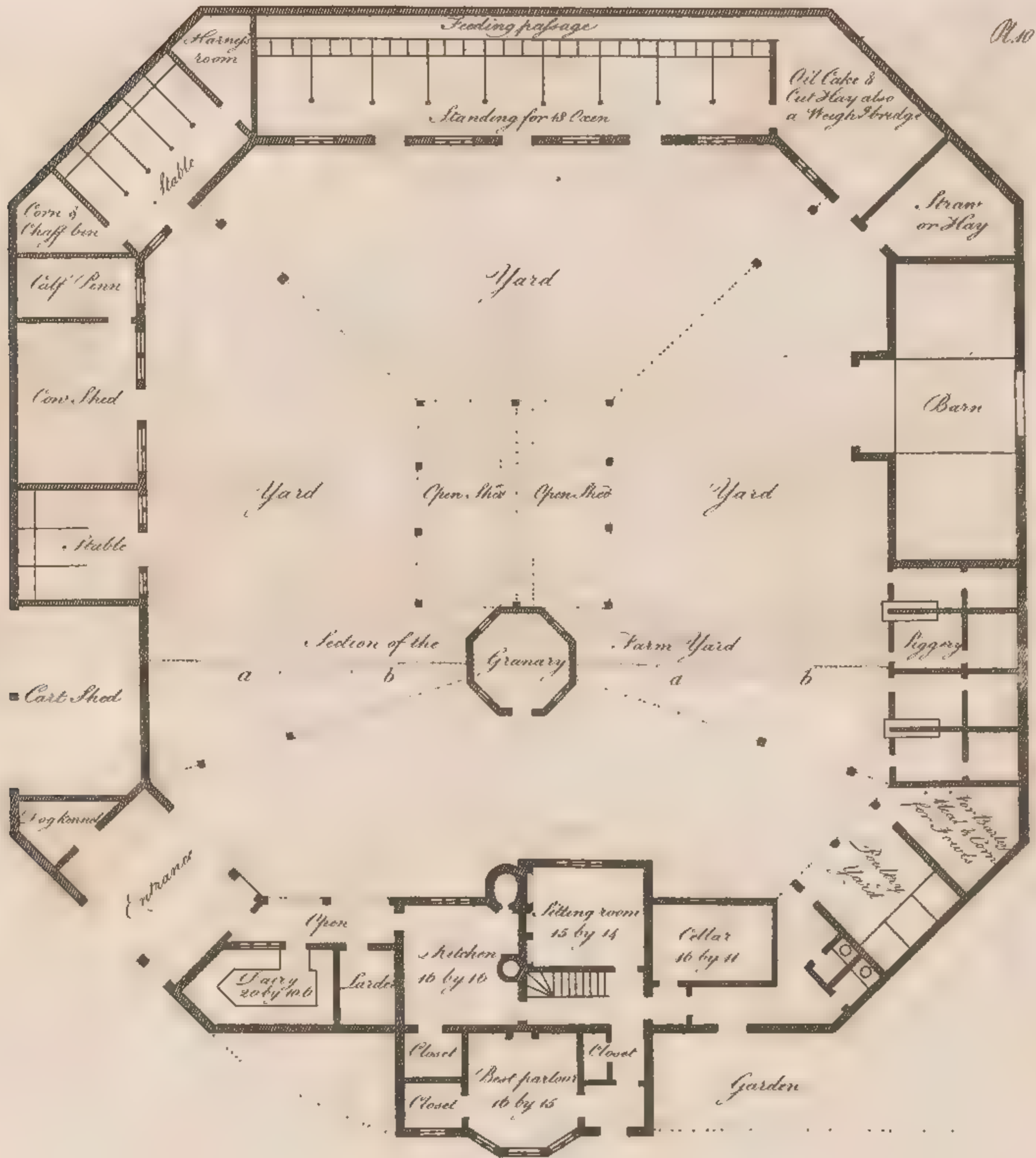




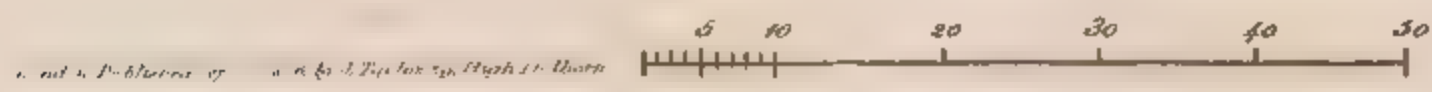








Plan for a Farm Yard & Buildings.

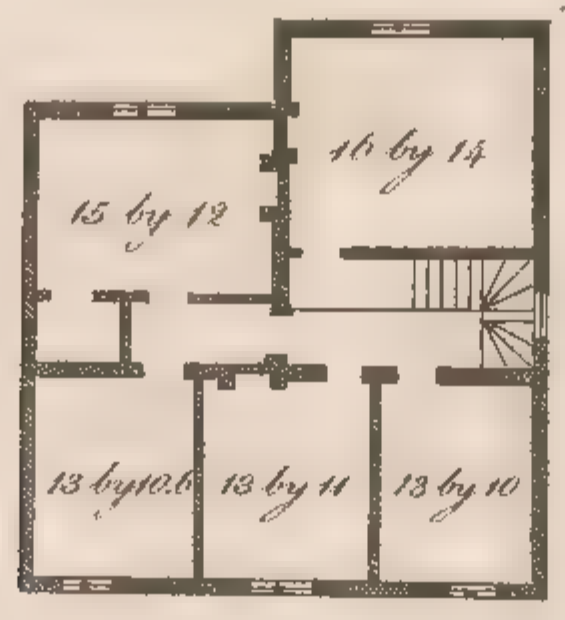




Pl. 11



Farm House
Elevation & Chamber Plan to Plate 10.



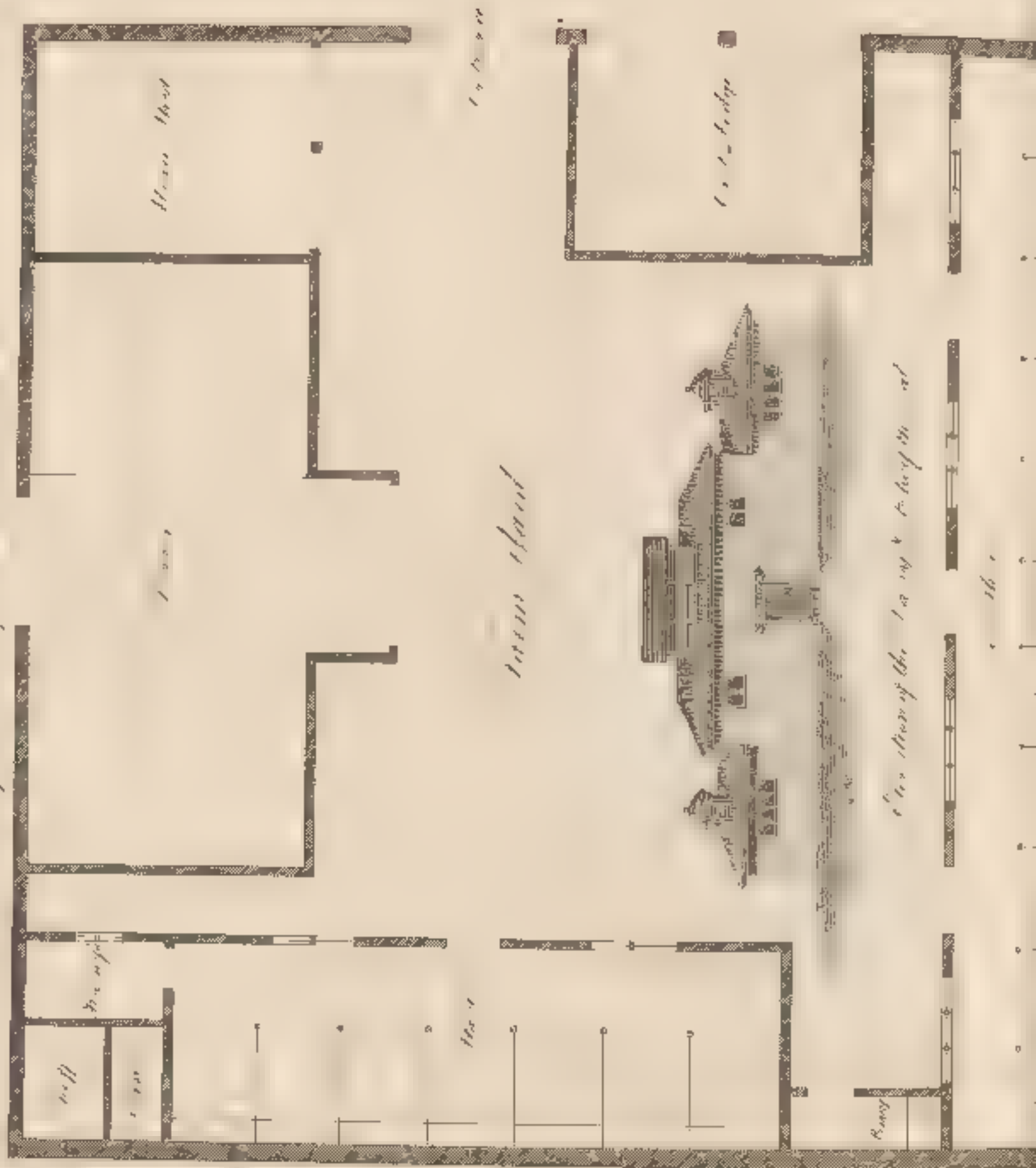








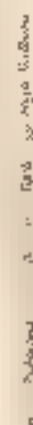
Alcove from yard over door

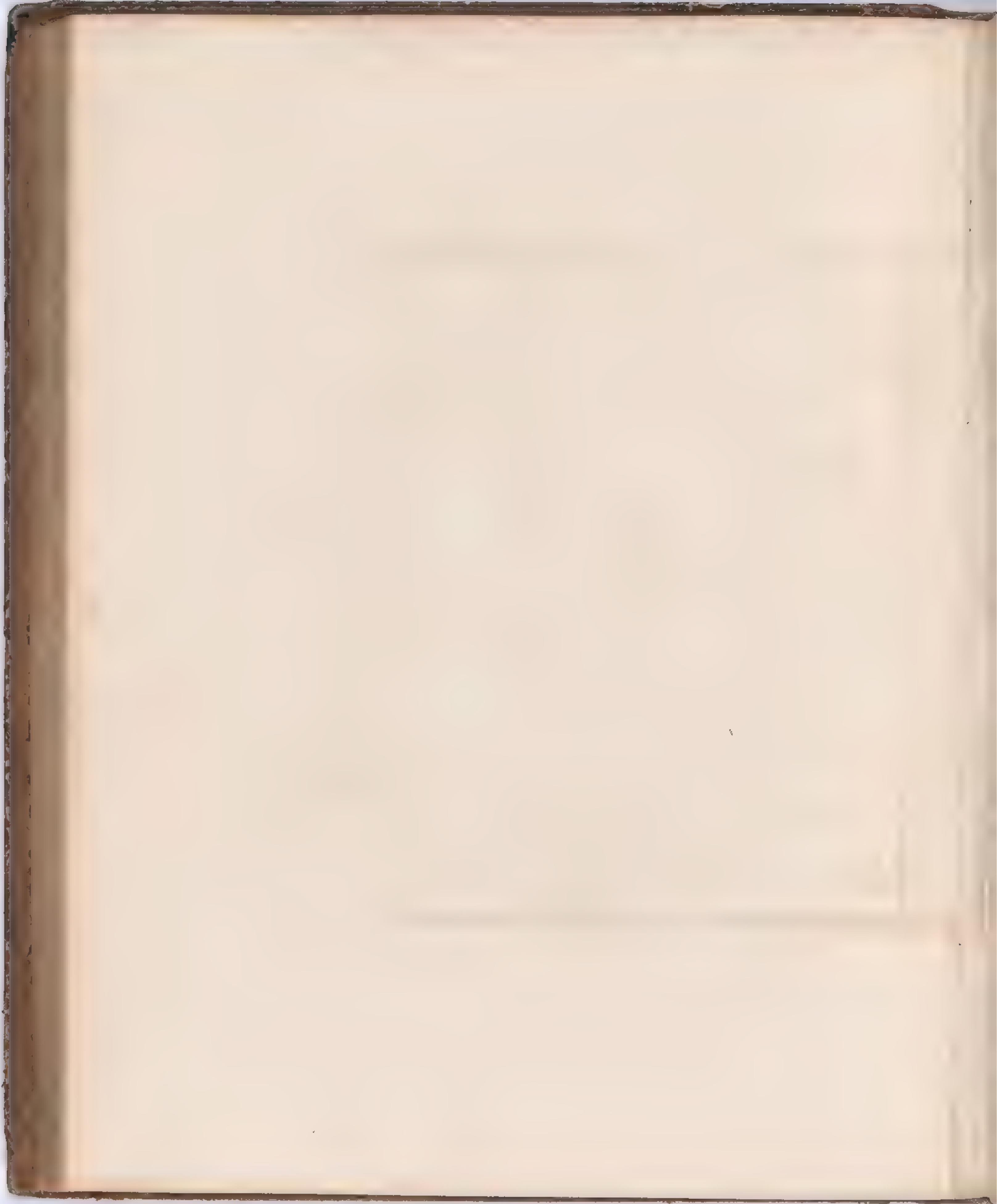


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Figure 10

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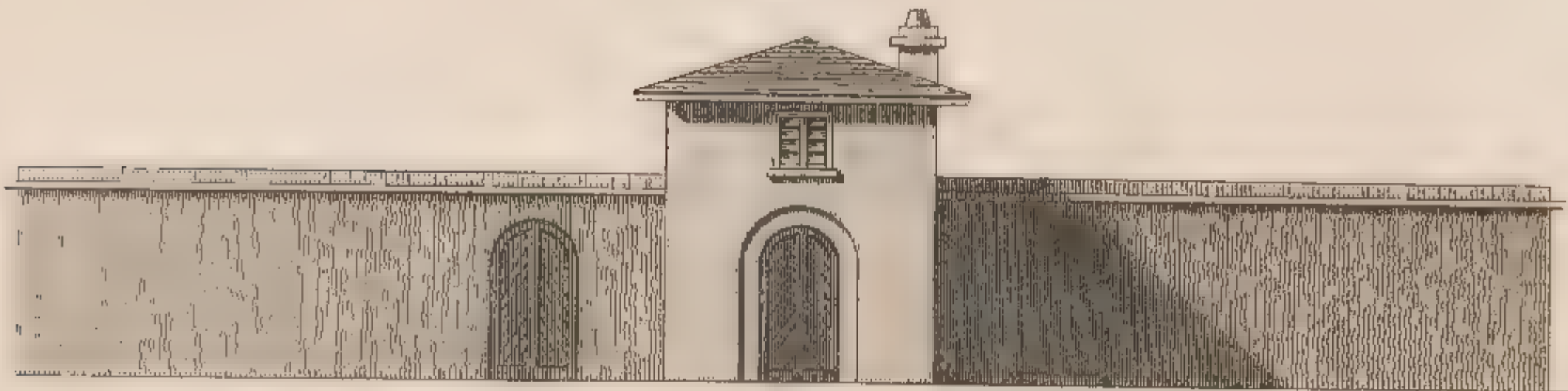




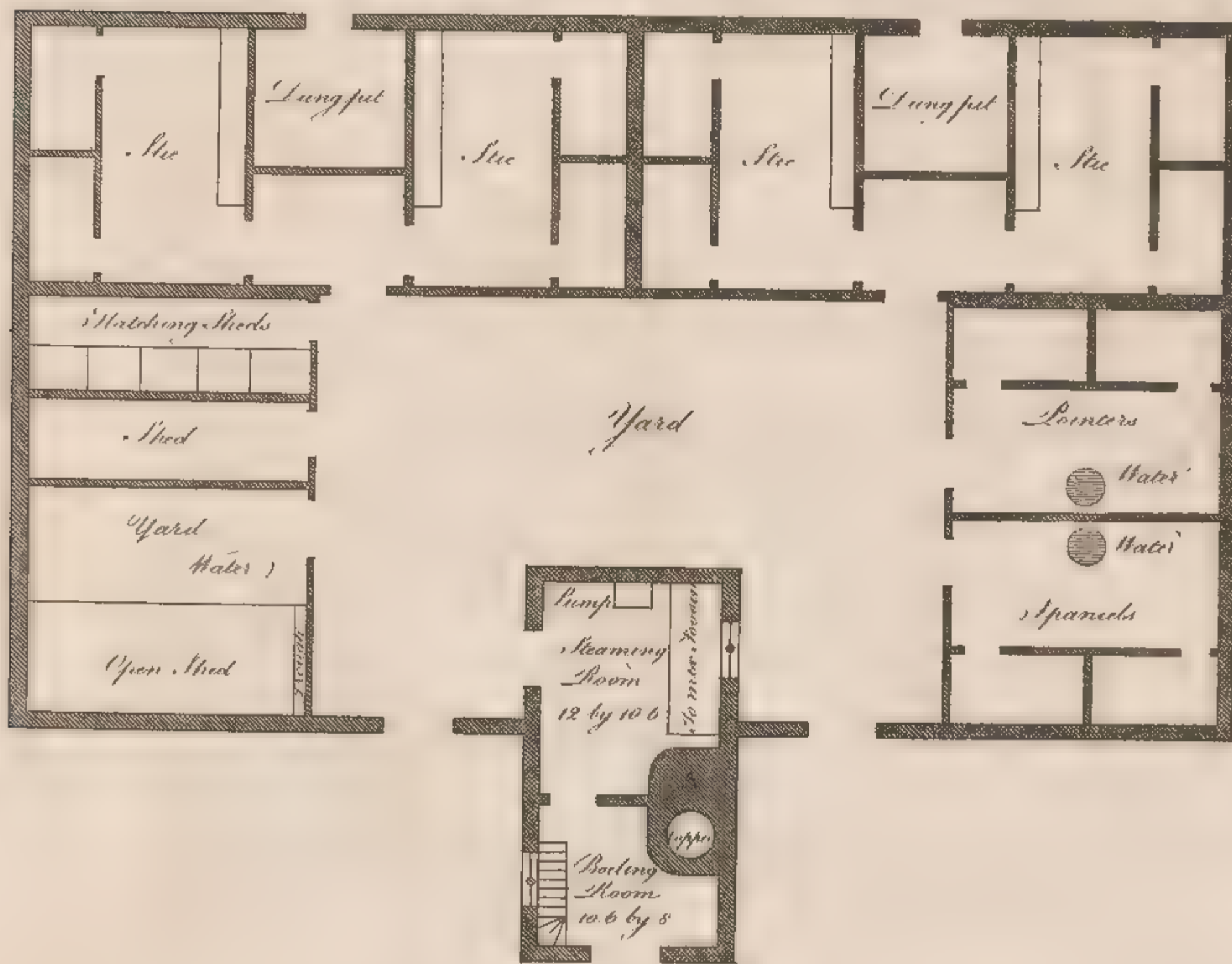


Pl 16

Elevation



Plan of a Piggery, Poultry Yard, and small Dog Kennel

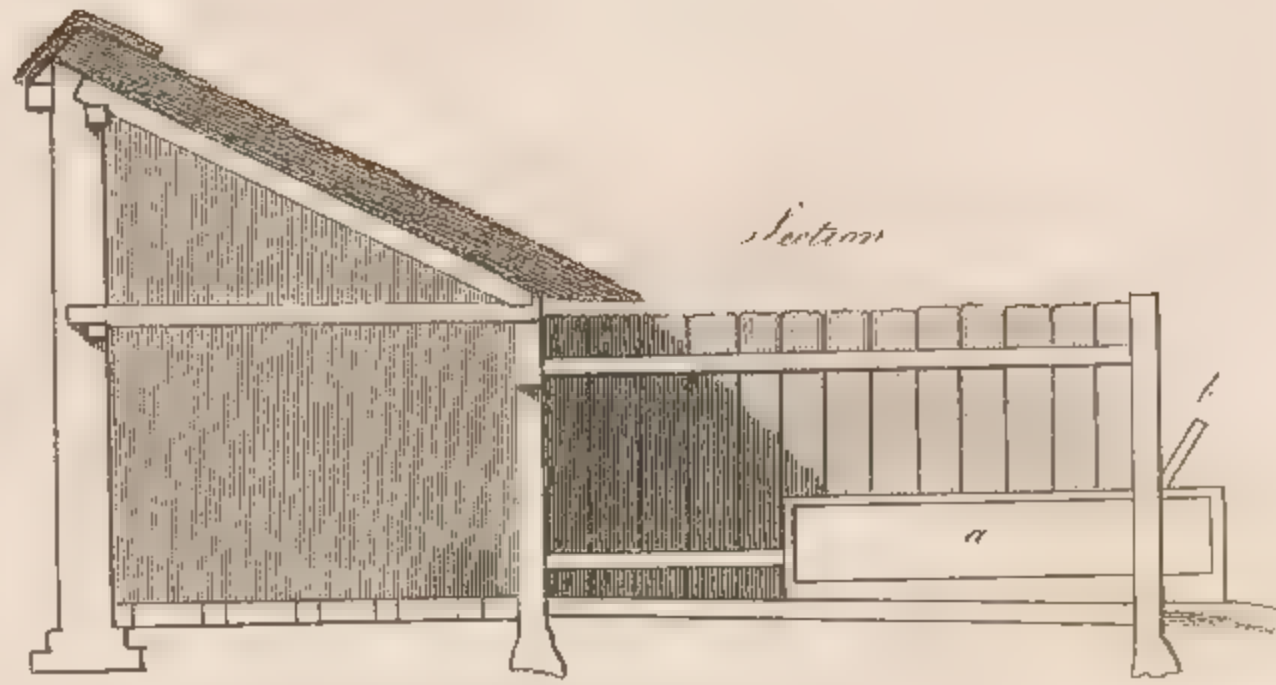
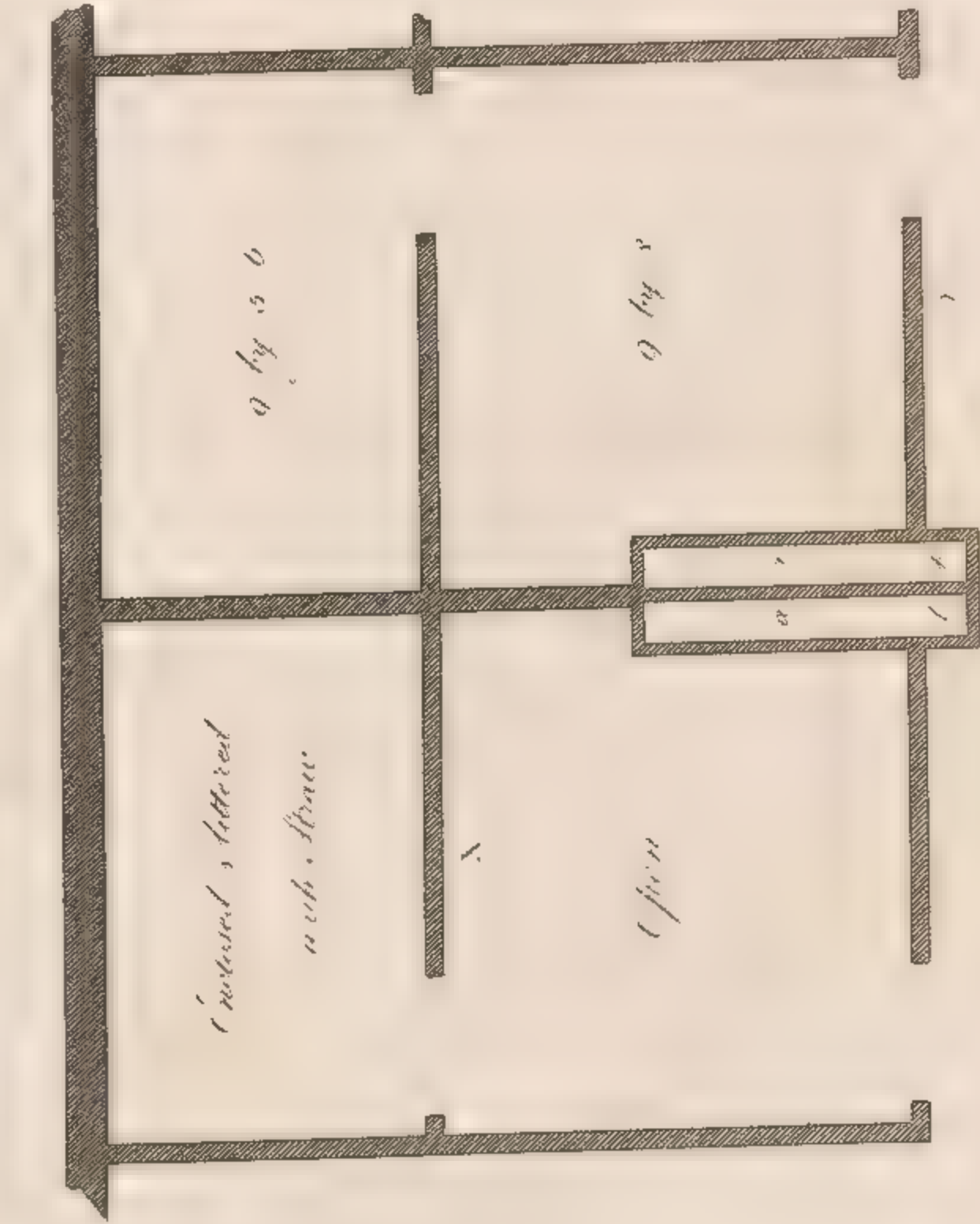
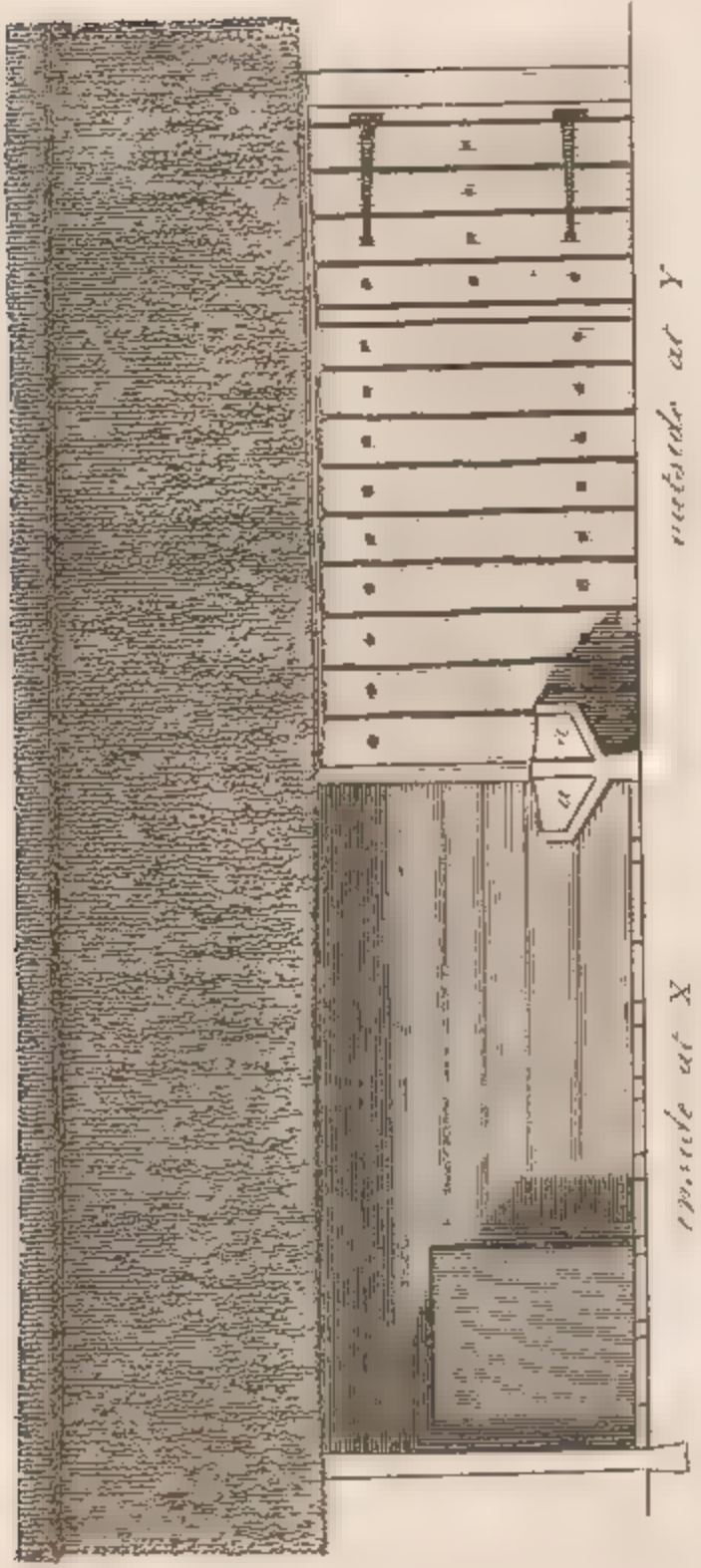


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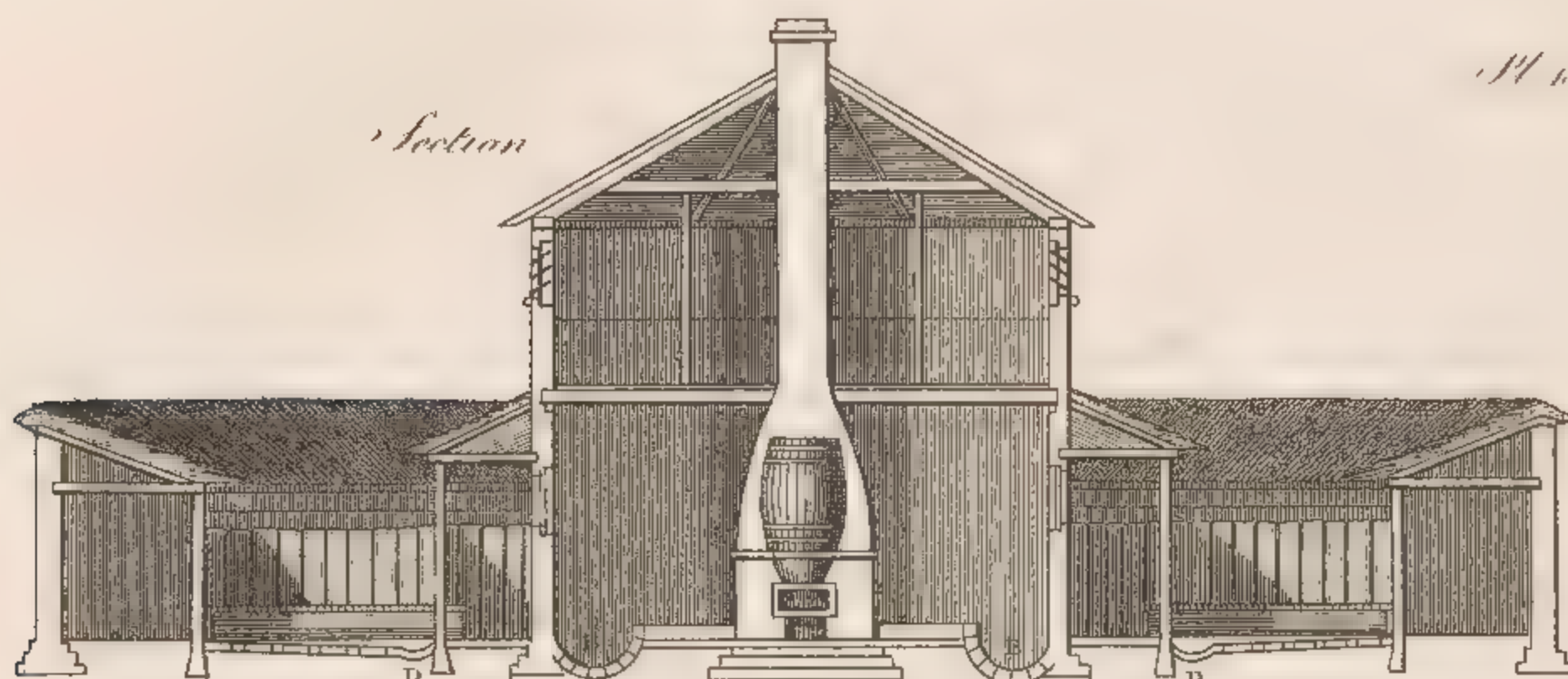


Pepper 24

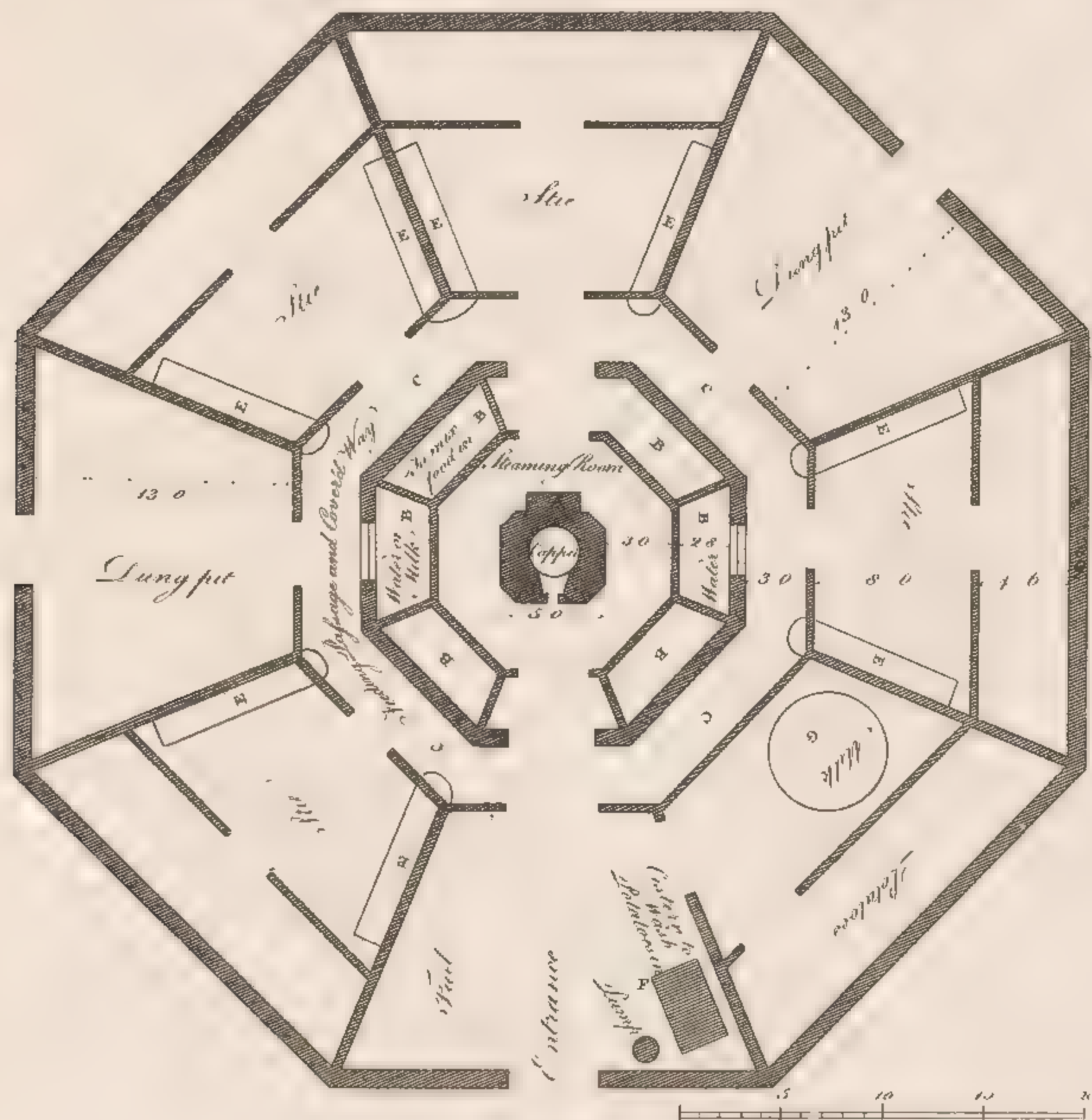
a - Bedding brought to have pipes over
to prevent the rain mixing with the food.
b - A flap to cover both. *Arched*
43 The floors to be paved with bricks.







Plan of a Liggery with steaming Room & granary over

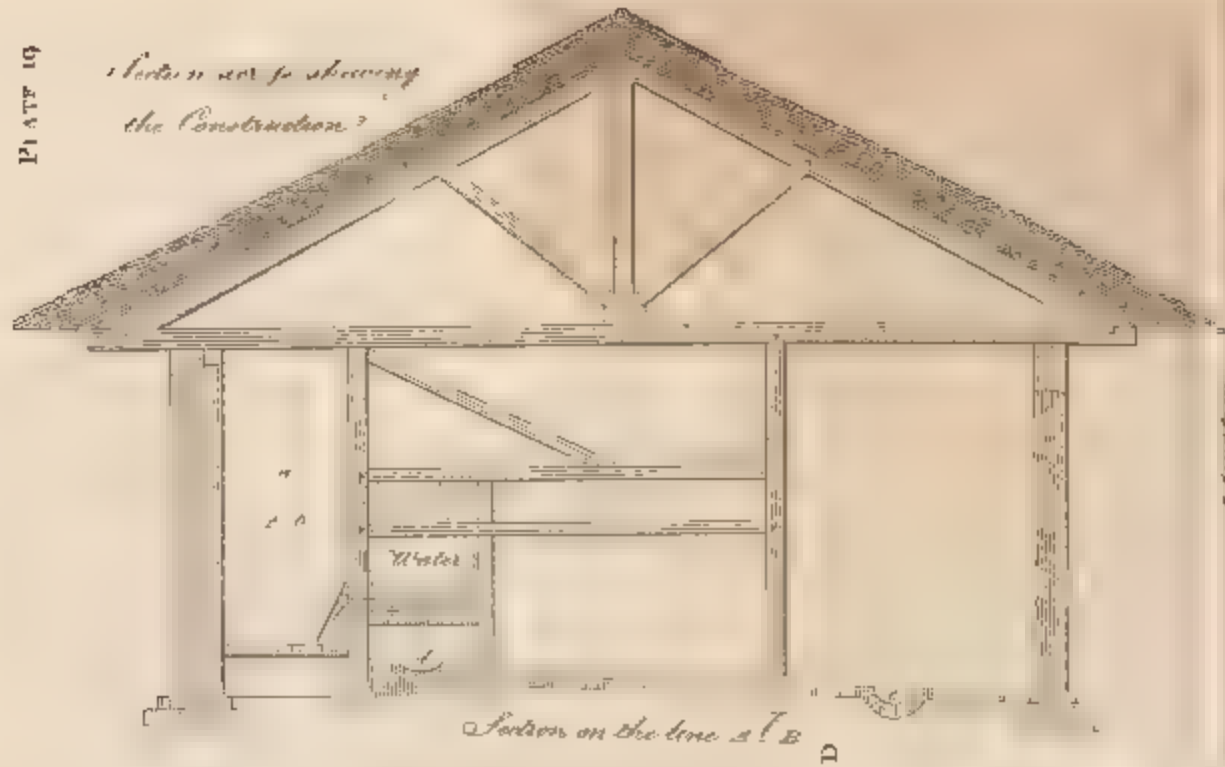






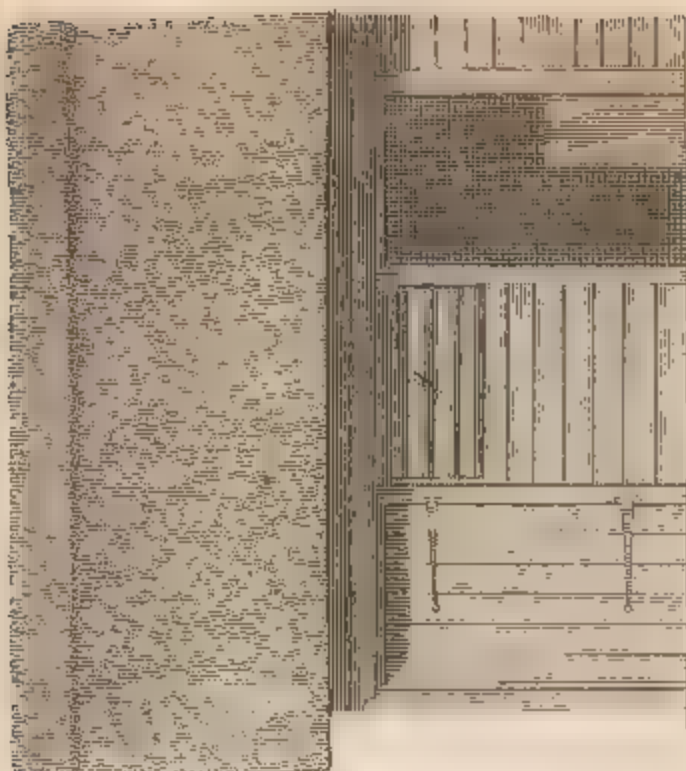
Pl. ATT 19

Section cut for showing
the Construction



Plan of the Sails



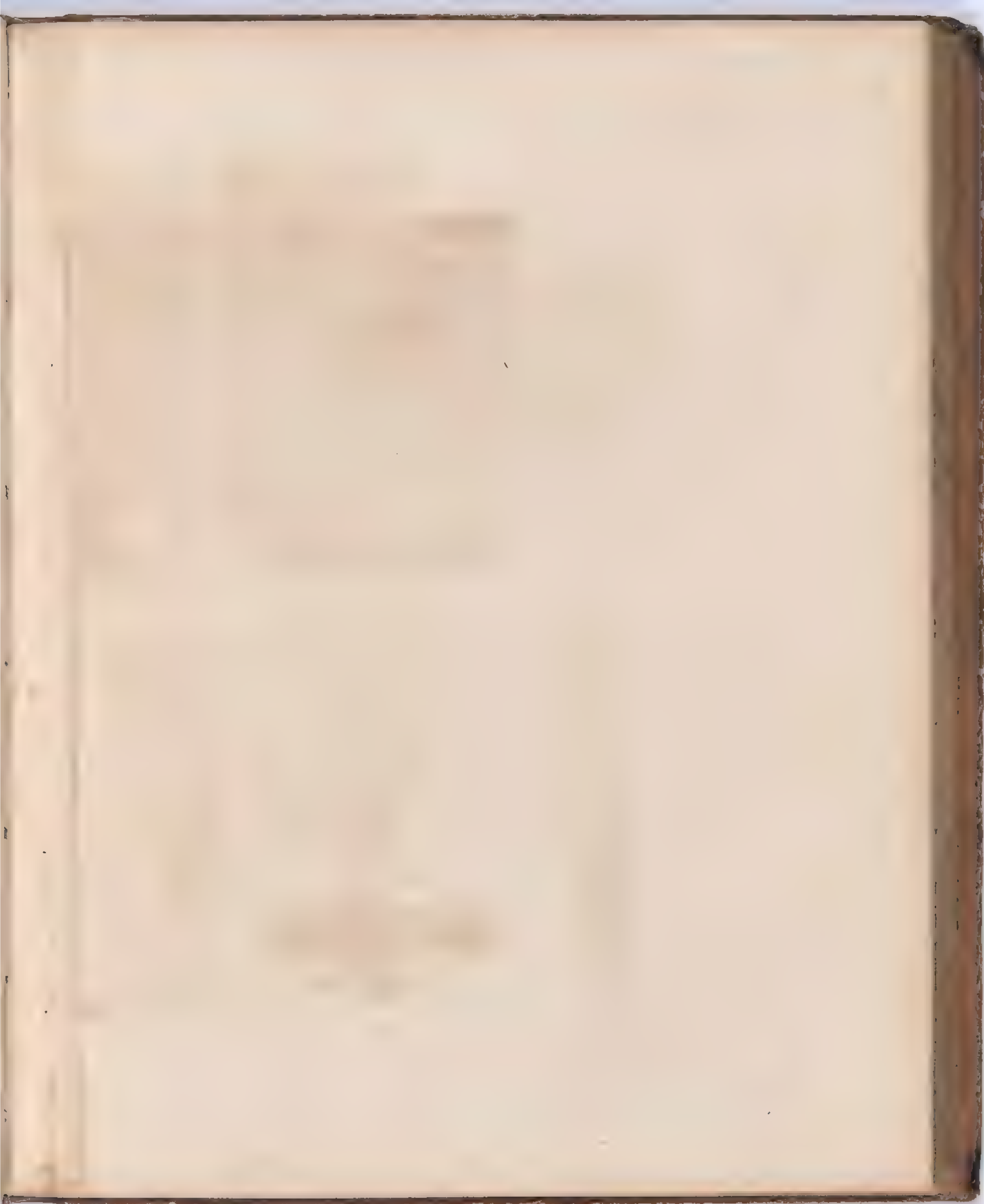


Plan, Section & elev. Factory House for 1888

- a. Pyroxylic for feeding
- b. Water pipes to convey the Water from a large cistern
- c. Water pipes to convey the Water from a large cistern
- d. Water pipes to convey the Water from a large cistern
- e. Water pipes to convey the Water from a large cistern
- f. Water pipes to convey the Water from a large cistern
- g. Water pipes to convey the Water from a large cistern
- h. Water pipes to convey the Water from a large cistern
- i. Water pipes to convey the Water from a large cistern
- j. Water pipes to convey the Water from a large cistern
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- l. Water pipes to convey the Water from a large cistern
- m. Water pipes to convey the Water from a large cistern
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- q. Water pipes to convey the Water from a large cistern
- r. Water pipes to convey the Water from a large cistern
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- u. Water pipes to convey the Water from a large cistern
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- w. Water pipes to convey the Water from a large cistern
- x. Water pipes to convey the Water from a large cistern
- y. Water pipes to convey the Water from a large cistern
- z. Water pipes to convey the Water from a large cistern

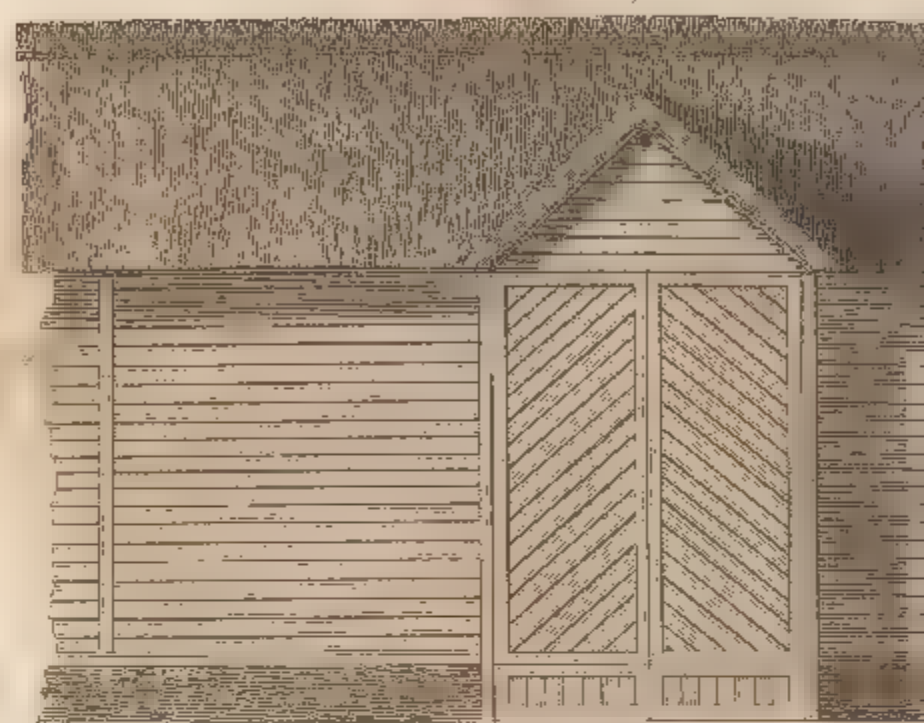
Scale 1/4" = 1'





the stone Press

- a Brake Peers
- b Foundation Wall &c
- c External Wall
- d Guard Boards to
- e vent the Corn, with
- when thrashing



Plan of the stone Press

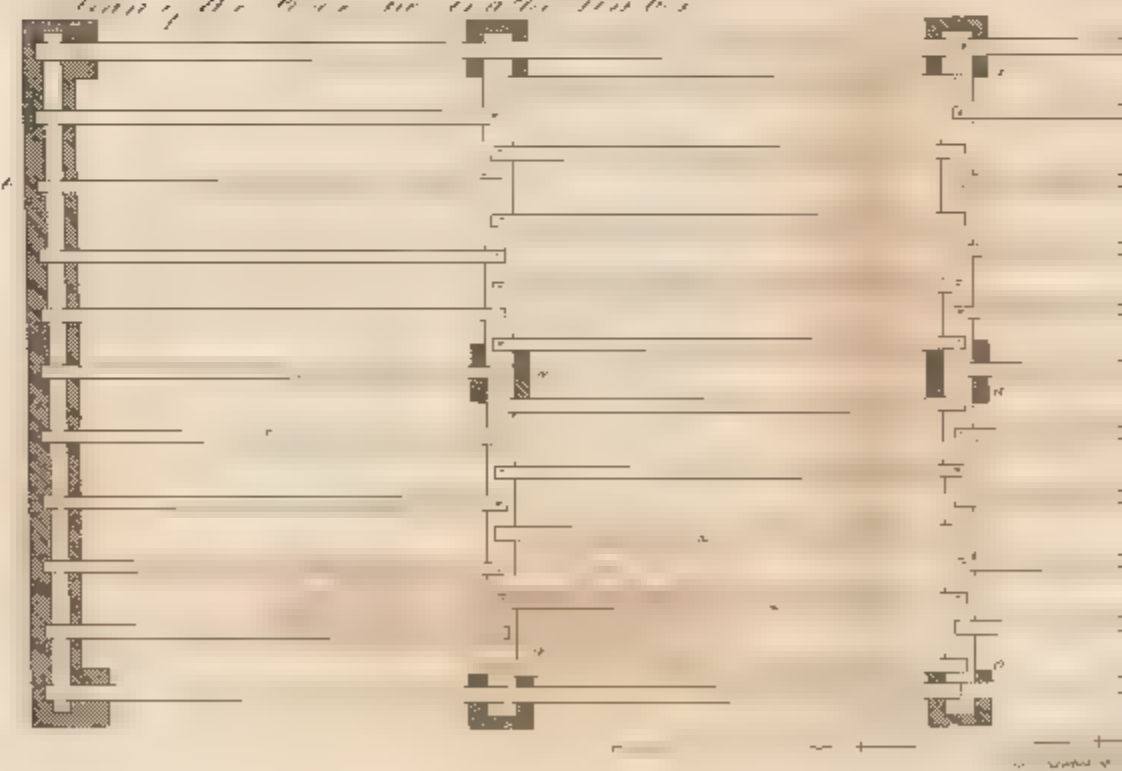
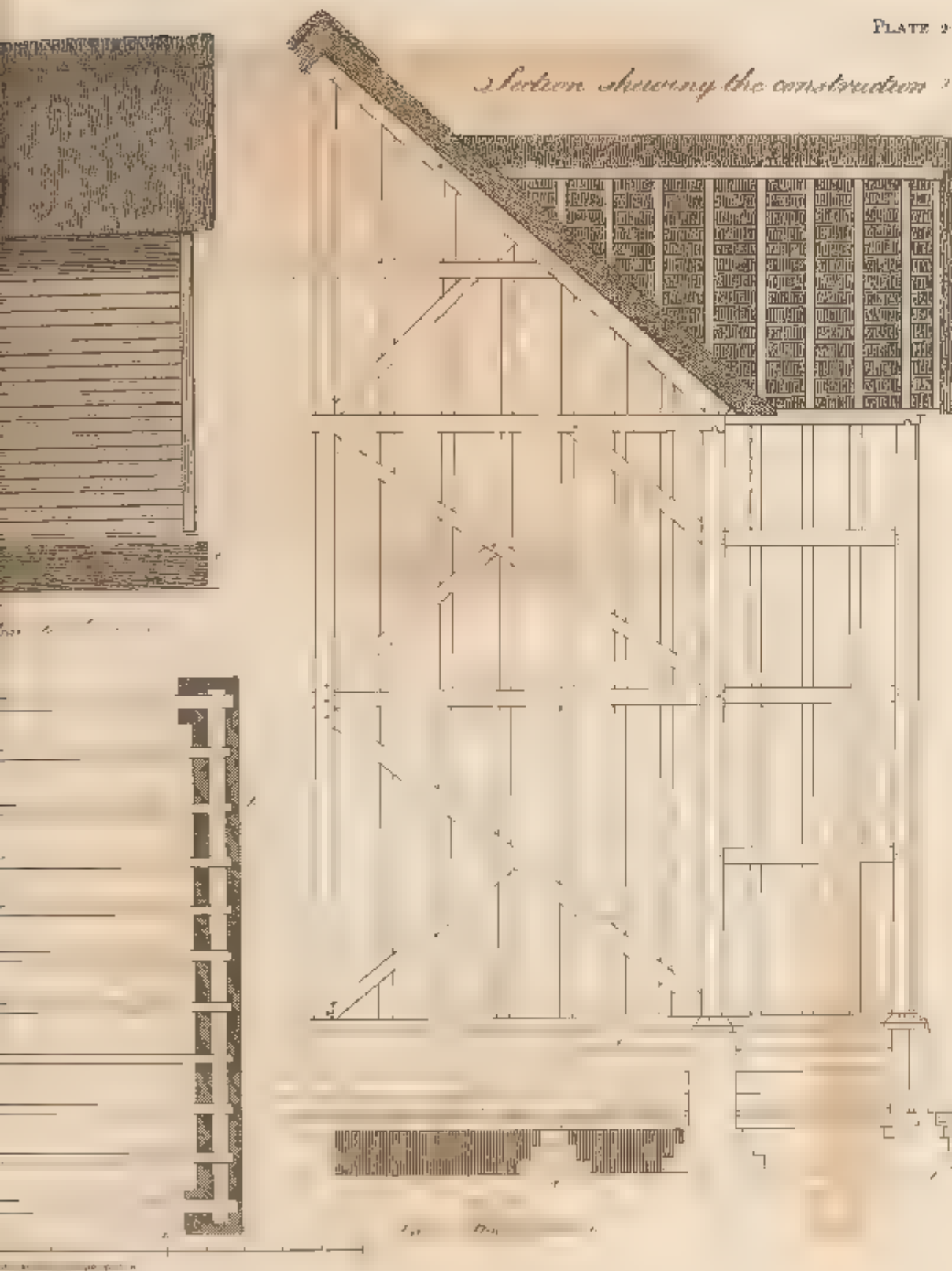
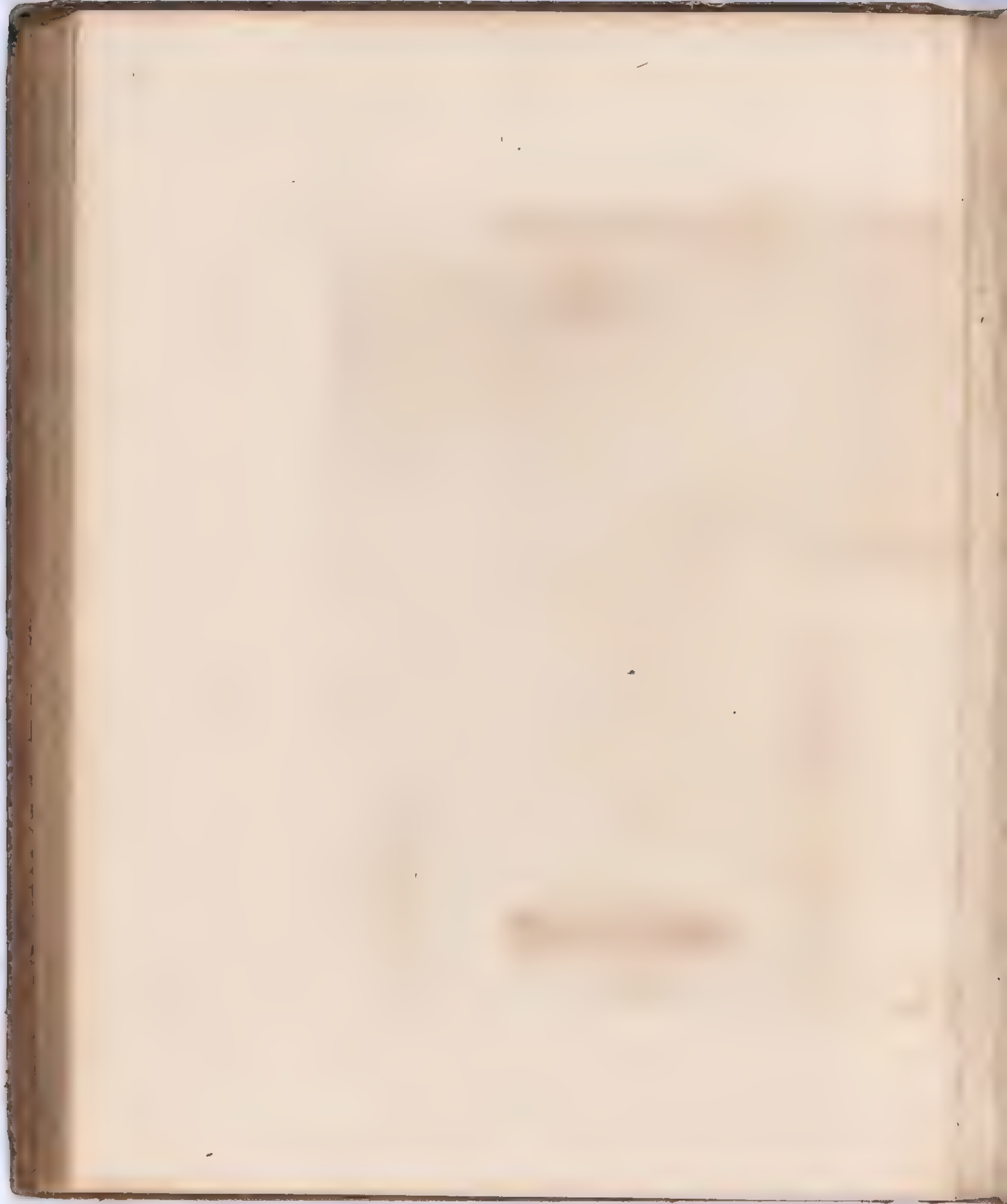


PLATE 2

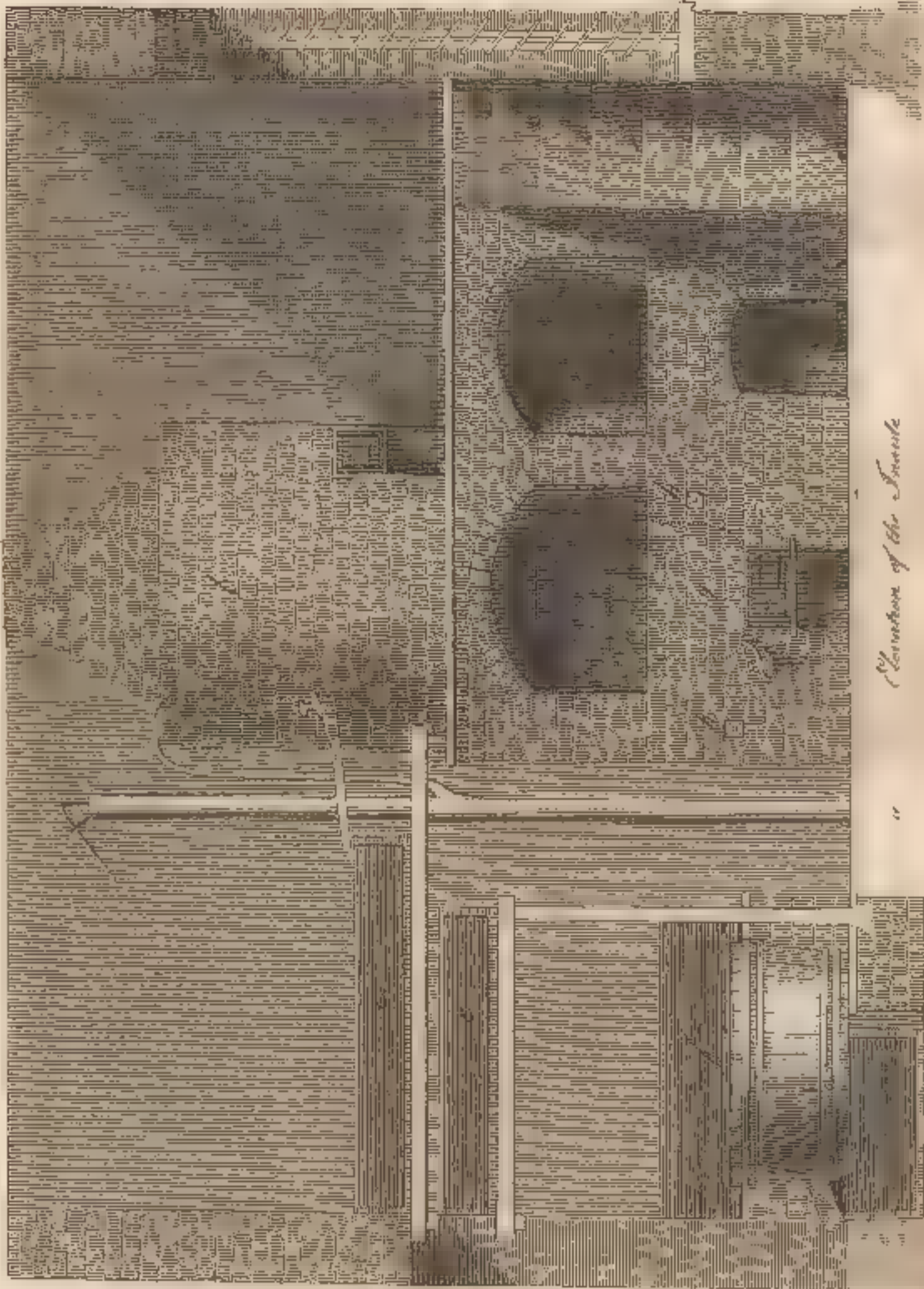
Section showing the construction



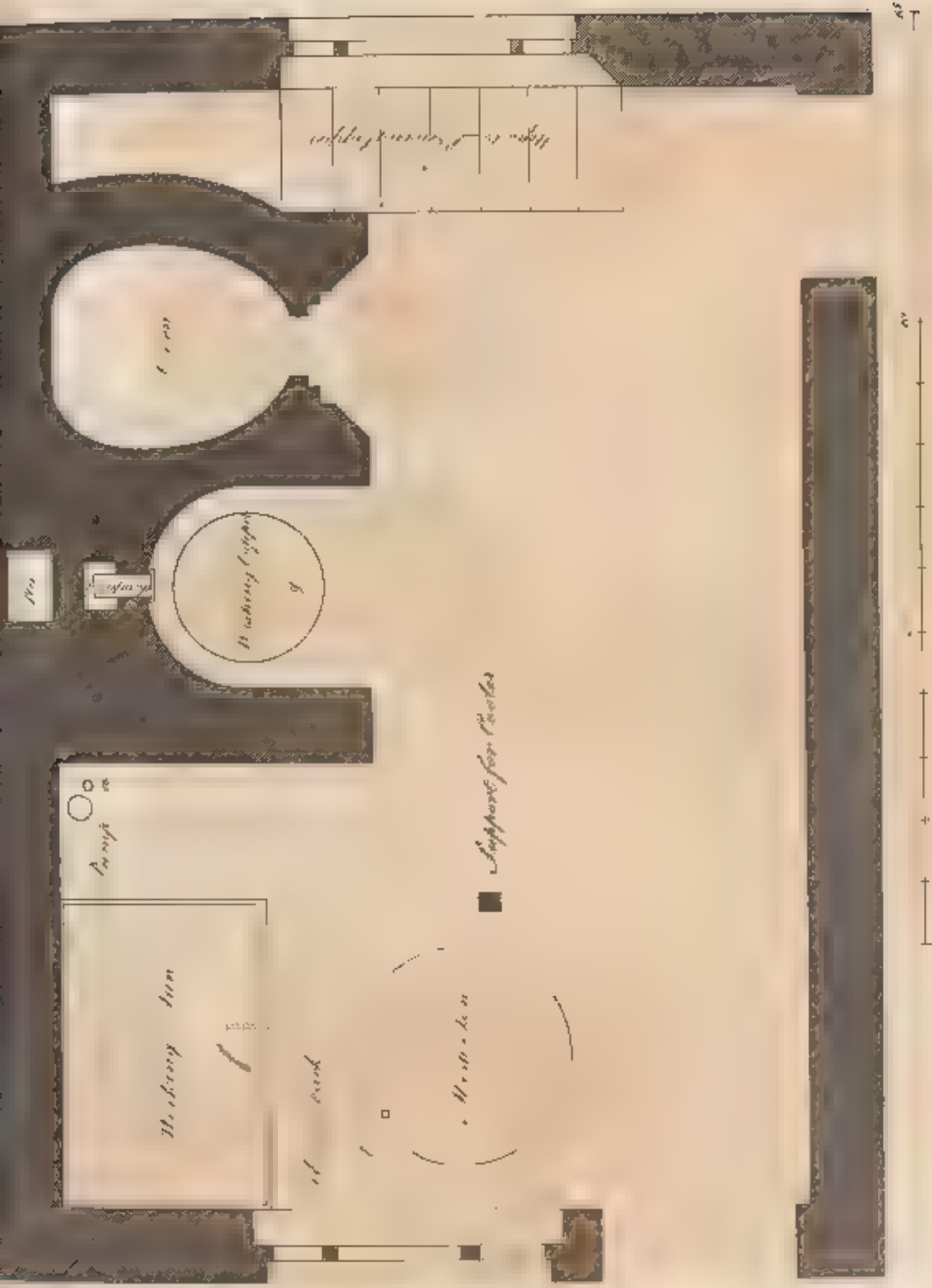




Plan of a Brew-house,
Washhouse & Bakehouse.

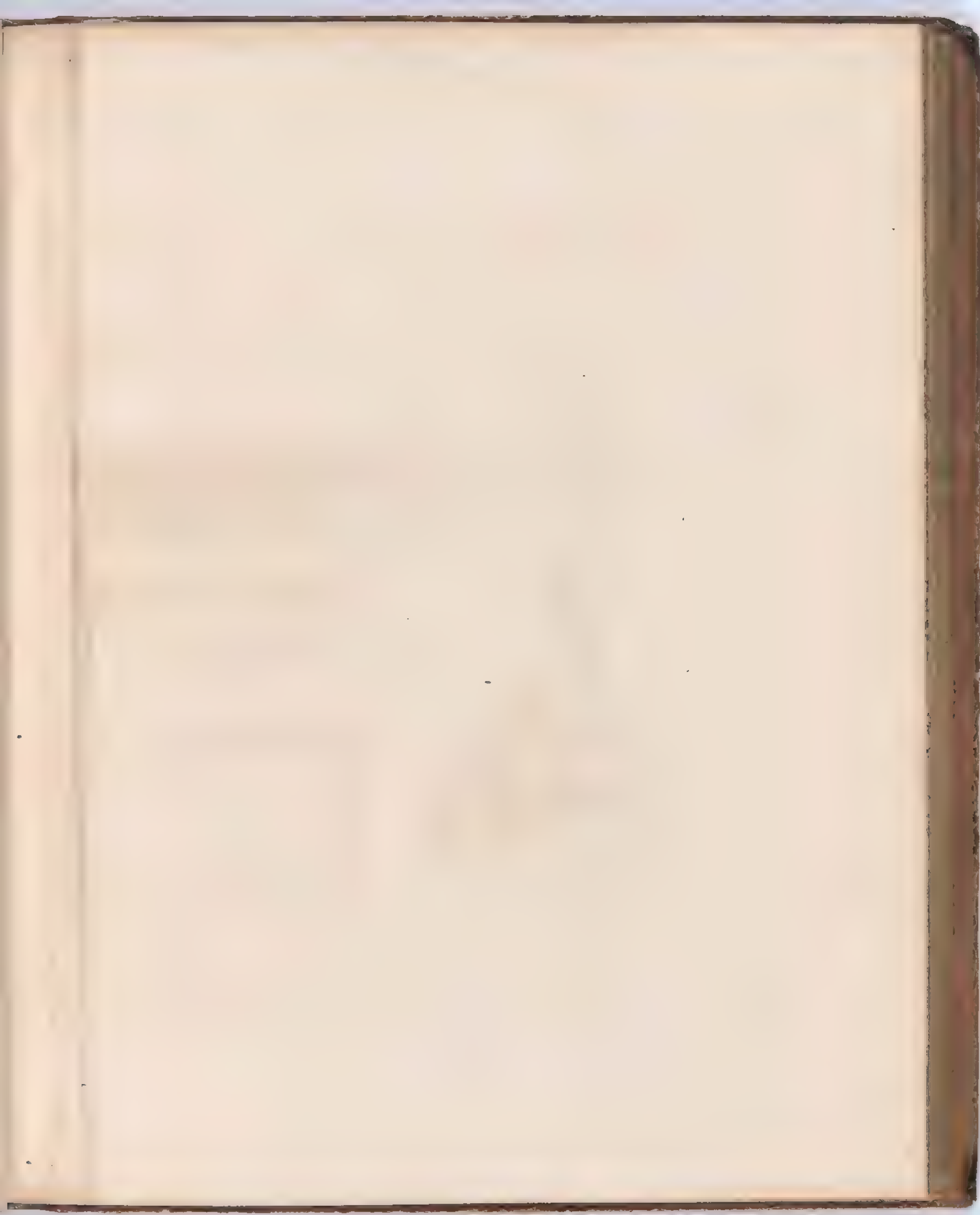


Lawrence of the South

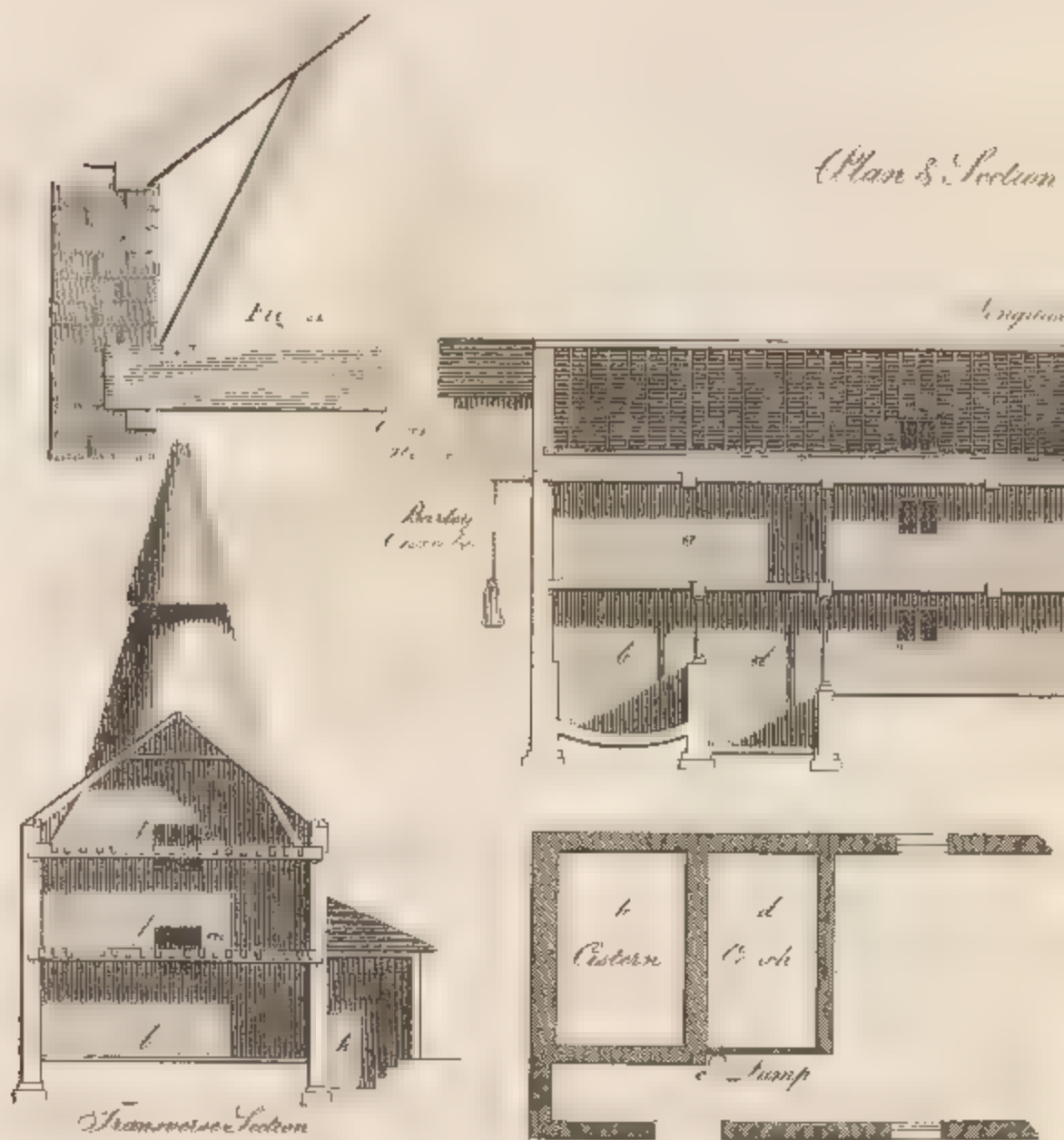


Scale bar





Plan & Section



of a. Halling

Arch. Section?

